DOCUMENT RESUME

ED 075 355 SP 006 292

AUTHOR	Thorpe, Jo Anne, Ed.
TITLE	Selected Volleyball Articles. Sports Articles Reprint Series.
INSTITUTION	American Association for Health, Physical Education, and Recreation, Washington, D.C. Div. for Girls and Women's Sports.
PUB DATE	70
NOTE	144p.
AVAILABLE FROM	American Association for Health, Physical Education, and Recreation, 1201 Sixteenth St., N. W., Washington, D. C. 20036 ($1.25)
EDRS PRICE	MF-$0.65 HC Not Available from EDRS.
DESCRIPTORS	*Athletic Activities; *Physical Education; *Physical Recreation Programs; *Recreation; *Recreational Activities; Womens Education

ABSTRACT

This collection of articles was selected from the 1959-1969 Division for Girls and Women's Sports "Volleyball Guides". This third edition in the American Association for Health, Physical Education, and Recreation's Sports Articles Reprint Series contains articles stressing the changes that have occurred in the sport of volleyball in the past 10 years. The booklet was designed to help the reader become informed about this fast changing game. The articles are grouped under six main headings: general; teaching and coaching; skills and drills; testing; recreation; and miscellaneous. The general articles contain information on volleyball terms, rules, and strategies. The articles on teaching and coaching provide teaching techniques and a suggested volleyball unit for the fourth grade. The next section provides the reader with information on the pass, overarm serve, and a strengthened defense. The next two sections deal with tests of skill in volleyball and the uses of the sport in recreation. The miscellaneous articles offer official rules for corecreational volleyball, a selected bibliography, a list of visual aids, and a volleyball scoresheet. (BRB)

ED 075355

SPORTS ARTICLES REPRINT SERIES

Selected Volleyball Articles

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SP 006 292

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The Division for Girls and Women's Sports of the
American Association for Health, Physical Education, and Recreation

Price: $1.25

Published by the

**AMERICAN ASSOCIATION FOR HEALTH,
PHYSICAL EDUCATION, AND RECREATION**

A National Affiliate of the National Education Association

1201 Sixteenth St., N.W. **Washington, D.C. 20036**

contents

Preface 5

general

Power Volleyball (1963-65 Guide) ..... *Howard Danford* 6

Volleyball on the Move (1965-67 Guide) ..... *Betty L. Reeves* 12

Let's Keep in Step (1967-69 Guide) ..... *Jackie Wilde* 15

teaching and coaching

Teaching Volleyball Fundamentals (JOHPER, March 1969) *Jerre McManama and Don Shondell* 19

Tips for Topnotch Team Play (1961-63 Guide) ..... *Joan Hult* 41

Volleyball—A New Challenge (1967-69 Guide) *Ninja Jorgensen and Nancy L. Chapman* 47

Let's Teach Strategy for Tournament Play (1965-67 Guide) *Frances Plunkett* 59

Developing Skill in the Volleyball Pass Through Conditioning (1963-65 Guide) ..... *Marilyn Stauff* 63

Activities for Large-Group Teaching (1961-63 Guide) *Charlotte Denman* 67

A Suggested Volleyball Unit for the Fourth Grade (1965-67 Guide) ..... *Evelyn Schurr* 71

Growing Up With Volleyball (1961-63 Guide) *Ada Boville Kennard* 77

skills and drills

Perfecting the Pass (1965-67 Guide) ..... *Ann E. Atwater* 82

Developing Skill in the Overarm Serve (1965-67 Guide) *Ina Temple* 90

Strengthen That Defense (1967-69 Guide) ..... *Sharon Peterson* 98

Volleyball—A New Approach (1965-67 Guide) ..... *Jane Ward* 103

The Serve—An Advanced Skill (1967-69 Guide) *Jo Rae Zuckerman* 107

testing

A Volleyball Skills Chart with Specified Attainment Levels (1967-69 Guide) ..... *Jo Anne Thorpe and Charlotte West* 110

Self-Testing with Rope and String (1963-65 Guide) *Virginia Lee Bell* 116
Wall-Volley Skill Tests (1963-65 Guide) ..... *Charlotte West* 121

recreation

Coed Volleyball for College Recreation (1965-67 Guide) *Barbara Baxter Pillinger* 126
Volleyball Doubles (1959-61 Guide) ..... *Frances Laura Chapman* 128
Beach Volleyball—A New Recreation Dimension (1967-69 Guide) *Jayne Herwig* 130

miscellaneous

The Ideal Volleyball Official (1967-69 Guide) *Dorothy V. Harris* 132
Comparison of Volleyball Rules (1965-67 Guide) *Jo Anne Thorpe* 135
Official Rules for Corecreation Volleyball (1967-69 Guide) 138
Selected Bibliography ..... *Revised by Carolyn Lukowicz* 139
Selected Visual Aids *Revised by Marilyn Stauff and Jackie Wilde* 141
Volleyball Scoresheet (1969-71 Guide) 144

preface

Volleyball has probably changed more than any other sport in the last ten years. This change has been brought about by two main factors—the inclusion of volleyball in the Olympics in 1964 and 1968, and the impact of the Fourth National Institute for Girls and Women's Sports in 1966. The Fourth National Institute undoubtedly exerted its greatest influence on the school and college programs, for power volleyball can now be seen at all levels of play.

The change in the game has greatly affected the choice of articles for this edition of **Selected Volleyball Articles.** Many of the well-written articles from the earlier **Guides** included in this series could not be chosen because of the vast difference in techniques today. A large concentration of articles from more recent **Guides** is the result.

Selected Volleyball Articles is representative of the game today, and the articles were chosen for their potential value in helping the reader to become informed about our fastest changing game.

Jo Anne Thorpe
Editor

Power Volleyball

HOWARD G. DANFORD *

The difference between power volleyball and ordinary volleyball is the difference between excellence and mediocrity, between superior and inferior teaching. Teachers should make every effort to improve the quality of their teaching of volleyball because (a) whatever is worth teaching is worth teaching well; (b) the superior teacher constantly stretches the capacities of her students, challenges them to rise to higher levels of performance, and teaches them never to be satisfied with mediocrity if excellence is possible; and (c) the higher the level of skill, the greater the enjoyment of the game and the more likelihood that the individual will continue to participate for years after she has left school.

A major responsibility of the teacher is to cultivate in her students a strong preference for excellence over mediocrity. This never-ending search for perfection must inevitably include intensive teaching of both the basic skills of volleyball and the team strategies which parallel it. Let's consider, first of all, two important fundamental skills.

The Serve as an Offensive Weapon

The overhand serve is more difficult to master than the underhand, but is used almost exclusively by the better teams of this country because it is far more difficult for the opposing team to handle than is the underhand serve. So skillful have many players become in their use of the overhand serve that it has developed into an offensive weapon comparable to a powerful serve in tennis. Teachers should do all they can to help players acquire a high degree of skill in this serve.

Teach the players to stand facing the net squarely with the left foot advanced. They should toss the ball up with the left hand and strike it with the heel of the open right hand, reaching as high as possible to hit the ball. The ball is tossed up, not in front of the face, but directly in front of the right shoulder. The hitting arm is bent almost at a right angle just prior to hitting the ball, but

* Formerly at Colorado State College, Greeley; now deceased.

straightens in the process of executing the serve. If the player holds the ball so the valve is toward the receiving team, a serve can be developed that will dip and slide after being hit. This tendency to dip fast after the ball crosses the net can be accentuated by capping the ball with the fingers as it is hit, thus imparting top spin to the ball. By not capping the ball with the fingers as it is hit, the player produces a floating ball that jumps, slides, and dies quickly after crossing the net. Teachers should emphasize that the mere ability to serve is not enough, and should encourage players to experiment in developing serves which their opponents cannot return easily.

Teachers should never forget the importance of students' experiencing success as quickly as possible. In teaching the serve, start the learner within 10 feet of the net, then ask her to move back one step after each successful serve. Almost immediately she sees herself as a successful server and acts accordingly.

The Chest Pass

If it is possible to say that any one skill in volleyball is more important than another, it is passing. For every serve, a team makes many passes. The serve is easy to teach; the pass is difficult. Most teams serve well; most teams do not pass nearly as well as they serve. The team that cannot pass cannot set up, and the team that cannot set up must fail in its attack. Time and effort spent on teaching and practicing the pass will be well worthwhile.

The greatest and most common error in volleyball is the attempt to pass a low ball by a two-handed contact with palms upward, thumbs out, and backs of the hands flat toward the floor. This pass is not recommended because it frequently results in holding fouls; the chest pass and the dig pass are more useful.

The chest pass is the most effective method of passing a volleyball. Teach the player to stand with the feet well spread, one foot slightly advanced, hands a little above face height, backs of hands toward the face, fingers widely spread, thumbs and index fingers nearly touching and forming a small "window" through which the player is told to look. As the ball is played, the player should move so that her nose will be under the ball, which she can see through the "window." Just before passing, the player should crouch slightly, but as her hands touch the ball her entire body extends in a forward and upward movement. If the pass has been made correctly, the arms will be extended above the head, not out in front of the face. It is usually helpful to jump from the floor slightly as the final phase of the pass. However, a player should never jump to meet a ball in the first phase of executing the pass, because she has no control when both feet are off the floor.

All passing should be done with the fingers and thumbs. The palms of the hands should not touch the ball. One can tell if the ball has been played correctly; the sound itself will tell—a dull "plunk" means hitting with fingers and thumbs; the loud "smack" heard when the palms are used is incorrect.

The most effective practice procedure I have used in developing skill in the chest pass involves the following: Stretch a rope across the court, parallel to the net and about 12 feet back from it. This rope should be at least 10 feet high. Place four canvas archery target faces flat on the floor about 6 feet apart, with their centers not more than 3 feet from the net. Arrange four squads of players back of the rope in single file with each squad facing one of the target faces. The drill begins with the easiest and simplest step and progresses as follows:

1. The first girl in each squad tosses the ball up to herself and passes it over the rope onto the target. The others follow in turn, each passing the ball three times.
2. The squad leader, standing between the rope and the net, tosses the ball with both hands over the rope to the passer who attempts, as before, to hit the target with her passes.
3. The squad leader serves the ball to the passer with an underhand serve.
4. The leader serves to the passer from about 10 feet back on the other side of the net.

Competition among the squads adds interest to this drill. Allow one point per team as each player passes the ball over the net and onto the target.

The two chief characteristics of a good pass are height and accuracy. The rope guarantees height and the target assures accuracy. The participants can see quite clearly whether their passes are good or poor.

The Dig Pass

Often a chest pass cannot be used because the ball is too close to the floor to get under it properly. This generally occurs when a spiked ball has been driven toward a defensive player below her waist. With all balls of this type, the dig pass should be used. The player assumes a crouched position, and as the ball comes near, she holds out an arm, hand closed and palm up. The ball may be played off the closed hand, wrist, or fairly rigid arm. The ball should be contacted with about as much force as a bunt in baseball and should be hit upward fairly high so a teammate can get under it to make the next play. Many outstanding players today place the palms of their hands together, interlace the fingers, and with

extended arms execute the dig pass by playing the ball off the two wrists. The underhand pass with open hands is not used by any of the better players in America.

An excellent method of practicing the dig pass is to have the leader stand on a level above the members of her squad—on bleachers, stepladder, or chair—with the squad in a semicircle about her; she throws the ball at them in such a position that they must use the dig pass to retrieve it. The force and angle of the throw will be determined by the ability of the players to handle the ball effectively.

The Spike

This is the last phase of offensive play, the most difficult, and by far the most spectacular. A good pass, followed by an excellent set-up, should result in a ball hard-driven into the opponent's court.

Spiking is one of the most difficult of all athletic skills to master because it involves hitting a moving ball with great power and with accuracy over a high net into a court guarded by six players, three of whom are blocking, and doing all this while your own body is entirely off the floor. This is roughly comparable to a softball batter's jumping into the air to hit a pitched ball.

The beginning spiker should learn to hit the ball first from a standing position. She should toss the ball about chest high with the left hand and hit it hard with the heel of the right hand with a whip-like motion. The next step is learning to approach the net properly: Jump high in the air and hit an imaginary ball. The net should be lowered to about 5½ feet so that the players may experience a measure of success early in their spiking practice. Gradually, as skill is developed, the net is raised 2 or 3 inches at a time until eventually, after several days, it is at the proper height.

The spiker's approach to the net, take-off, and jump are very important and should be taught carefully. The player stands 8 to 10 feet from the net; takes a few quick, short steps toward the net; brings both feet together in a momentary two-foot stop; crouches; jumps as high in the air as possible; brings the spiking hand behind the head, as a catcher does in throwing to second base; and hits the imaginary ball with the heel of the open hand in a quick whipping motion.

The next step is to hit an actual ball tossed up within 2 or 3 feet of the net and 5 to 8 feet above it. The teacher should emphasize the following points:

1. The spiker must not start her jump until she knows where the set-up is. If she commits herself too soon, she will be out of position to hit the ball effectively.

2. The spiker must come to a definite two-foot stop after the short take-off run; otherwise, her momentum will carry her into the net or across the center line, both of which are fouls.
3. The approach should be either straight in toward the net or at a slight angle—never parallel to the net.
4. The take-off should be behind the ball, never directly under it, since the spiker can hit a ball much harder and more accurately if it is in front of her than if it is over her head.
5. Timing on the jump is extremely important. The higher the ball is in the air when hit, the more sharply it can be smashed into the opponent's court. Therefore, not only should the spiker be able to leap high into the air, but her jump must be timed so that she can hit the ball at the highest point of her jump.

Defensive Play

A good offense is said to be the best defense in most games. But in volleyball a team must be able to stop its opponent's serves and spikes before it can possibly score, since only the serving side can score, and the serve is almost invariably returned with a hard spike.

About 85 percent of all served balls land in an area 5 feet in front of the endline and 5 feet back of an imaginary line running from side line to side line through the middle of the defensive court. Therefore, when receiving a serve, the front line players should move back from the net about 10 to 12 feet and the back line players move up until they can almost shake hands with the front line players. The front line set-up girl, however, stays close to the net. She does not want to handle the serve, since a served ball is very difficult to set up properly. While awaiting the serve, the players on the receiving team should stand in a slight crouch, facing the ball squarely, with hands in position above head level, and ready to move quickly to the right, left, forward, or back so they may get under the ball when executing the pass.

When the opponents are spiking, the defensive team should try to take the speed off the spike by blocking the ball at the net. Generally, the three front line players will be involved in the block. After determining where the set-up is going, blockers should move to that spot with the middle blocker directly opposite the ball and about 18 inches from the net. All three blockers go up together, arms extended as high as possible, fingers spread and tilted slightly backward, the six hands forming a barrier immediately in front of the ball. The hands should be within 2 or 3 inches of the net, but must not touch or go over the net. Tilting the hands back prevents injury to the fingers and lessens the possibility of touching the net.

The center back player is a key figure on defensive play. When the three front players are blocking, she moves up directly back of the middle blocker and within 3 or 4 feet of her to get all spiked balls that hit the blocker's hands and fall just back of them. When her team is spiking, she moves up back of the spiker to get all balls that are blocked and drop back over the spiker's head. In other words, she plugs up a hole where, as studies show, numerous points are lost unless this bit of defensive strategy is carried out.

Team Strategy

When the ball comes over the net, each girl on the team should know precisely where the ball should go and what her particular job is on that play. In general, team strategy calls for a pass, a set-up, and a spike. The first player who receives the ball from the opponents will pass it to the set-up player at the net, whose spiker is also at the net. Fifty percent of the time, the set-up player will be in the center front with a spiker on either side of her. This is a far stronger position than if two set-up players are at the net because it permits an element of deception in the attack. Facing one of the spikers, the set-up player may set the ball either to the spiker in front of her or back over her head to the other spiker. She attempts to deceive the opposing blockers into thinking she will set the ball to one spiker while she plans to give it to the other, hoping that the second spiker will be able to hit the ball before the blockers can get into position to block.

The teacher who sets her standards high and who is never satisfied with mediocrity when excellence is possible will do everything in her power to interest youth in volleyball. She knows that their enthusiasm will vary directly with their degree of skill. She also knows that skill in serving, passing, setting up, spiking, and blocking cannot be attained in a short time. It takes weeks and months of patient and intelligent practice, constantly motivated, checked, and corrected by an observing teacher before truly worthwhile results can be obtained. But once they have been attained, these skills and the absorbing interests that accompany them will enrich the lives of the girls over many years.

Volleyball on the Move

BETTY L. REEVES
Past chairman, Los Angeles Board of Officials

The Modern Game

The object of volleyball is to serve the ball in such a manner that the opponent cannot return it, or if it is returned, that it will be a "free," easy-to-handle, ball. This means that either speed or placement or both must be the main objective of the server. She should attempt to make all serves land in the back third of the court or placed to an obvious hole or a weak player.

The receiving team must be ready at all times. They should hold their hands and arms above the waist, one foot slightly ahead of the other; small jumps may be used to keep the body alerted for action. The front line players should move away from the net so that the back court can be covered more thoroughly. Very few serves drop in the front third of the court. The *first player* to stop the ball should have one objective in mind—to get the ball up into the air and directed toward the center forward, the setter, if possible. The *second player's* goal is to set the ball up to one of the other forwards so that the ball can be spiked in such a manner that it cannot be returned. If control cannot be gained in the first two hits, the third hit must be a recovery or save shot, which means that the ball will probably be punched, dumped, or dug over the net, giving the opposition a free ball in most cases.

Each team will attempt to make the perfect play, pass-set-spike, and to outwit the opposition by using either the left forward or the right forward for the spike. The setter is the "quarterback" of volleyball, and she will use a forward set or a backward set so that the opponents will not always know which forward will attack. When it is obvious which forward will be spiking, the opponents immediately prepare for a one-, two-, or three-man block, and the other players cover the blockers for "bounced-off" plays.

Volleyball should be a fast game of skill, coordination, agility, and speed. It requires strength, anticipation, and ability to move quickly with fast reactions. The winning combination is to develop *all* players as setters and spikers with strong defensive skills.

Current Terminology

Block. A block is a defense against the spiker which involves one, two, or three players at the net who are attempting to stop the spiker's hit.

Bounce Pass, Forearm. Both hands are clasped together with forearms side by side. The ball is bounced off of the forearm.

Bounce Pass, One Hand. This is a closed-hand position that causes the ball to bounce off the one hand and forearm.

Dumped Ball. This is a poor set-up that the spiker must save with stiff fingers, a fist, or side of hand.

Free Ball. This is the returned ball of the opponent that is easy to handle.

Holding. Usually this foul is a two-handed movement that allows the ball to rest momentarily in the hands.

Lifting. An underhand movement that causes the ball to rest on the hands or arms and be carried upward.

Pass. The first receiving player attempts to gain control of the return or serve and make a volley that is playable for the second player.

Pushing. Usually this foul is a two-handed chest movement that causes the ball not to be "clearly batted."

Punched Ball. This is a fist action to save a poor pass that is too close to the net for the setter or spiker to handle.

Recovery or Save Shot. This is any bounce pass or underhand hit that cannot be taken with the overhead position.

Setter. The setter is usually the center forward, because spiking is generally more difficult from the center position.

Set-up. This is usually the second play on the ball, volleyed high and close to the net so that the third player may spike it.

Spiker. The spiker is a player in the right or left forward position who attempts to hit the ball downward in the opponent's court.

Spike, Off-Hand. If the spiker is right-handed, his off-hand side would be the right forward position. The set-up needs to be placed toward the extreme right corner.

Spike, On-Hand. If the spiker is right-handed, his on-hand side would be the left forward position. The set-up needs to be placed toward the center of the net.

Throwing. Usually this foul is a one-hand or two-hand overhead movement that causes the ball to "ride" the hand during a throwing action.

Techniques to Help Eliminate Fouls

Pushing. If the palms of the hands contact the ball during an overhead pass, the pushing foul may be committed because the ball takes a momentary "ride" on the palms. If the ball is contacted

with the fleshy part of the fingers and thumbs, the ball is less apt to be carried in the movement. The ball should be contacted above the head over the nose or forehead to avoid a chest pass action, which will often result in a pushing foul. A hit made by the heels of the hands or fists that are not clasped together is legal but not recommended, due to lack of control and the additional liability of a double hit.

Lifting. If open hands are used during the underhand hit, the ball usually contacts the palms and is carried upward without a clearly batted action. If the ball contacts the fingers only, the action of the hit from a below-waist to above-waist position may create a lifting foul. Therefore, a bounce off the forearms and/or clasped closed hands is recommended. If the hands are not clasped, a double hit may result.

Throwing. If a player does not face squarely in the direction of her intended pass, one hand may stay in contact with the ball to enable a change of direction, and this action probably will create a throwing motion and foul. The spiker's hand must be cupped or closed for lower skill levels because the open hand stays on the ball to give it direction and creates a throwing action. More advanced players may use an open hand because the force of the faster movement means that the hand is on and off the ball in a more clearly batted or slapped action.

General comments. Many fouls are committed during the game because the players have not practiced or experienced the return of hard spikes, spinning or hard serves, and balls coming directly at them which demand a fast reaction. Therefore, the instructor should plan specific drills in body positioning, hand and wrist strengthening, and developing an accurate reaction to faster and faster ball flights. Fouls are legally based upon the terms "clearly batted" or "momentary rest." The three most common indicators of a possible foul are the use of hands and follow through, the body position at time of contact, and the sound of the batted ball. No *one* factor would or should indicate that a foul has been committed.

Let's Keep in Step

JACKIE WILDE
YWCA, Fort Dodge, Iowa

Volleyball is one of the most acceptable sports for physical development of women and girls. It involves the use of large muscle groups, agility, speed, and coordination. In addition, the traditions of the game inspire fair play and honor among its participants. It is ideal for recreation leaders because it is easily adaptable to all age levels and all interest groups.

Girls as young as upper elementary age begin to take a keen interest in competition and personal development of skills. At this age they can easily learn proper basic skills which will lead to development of a good game of volleyball. It is imperative that youngsters learn these skills properly so that they will not later be faced with the more difficult task of changing old skills.

Elementary-age girls particularly like the challenge of relays. The serve, bounce pass, and overhead volley are all adaptable for relay activity against a gymnasium wall.

Distances which can be used for such relays are the following:

For the serve: Start about 10 ft. from wall and serve to a space above a 5-ft line. Increase distance with skill.

For the overhead volley: Start 3-5 ft. from wall and volley to a height of 7 ft. on wall. Increase number of volleys with skill.

For the bounce pass: Start 3-5 ft. from wall and volley above a 5-ft. line on wall. Increase number of volleys with skill.

Especially worthwhile for the young girl and for many junior high students is the underhand bump (also called the bounce pass). The traditional underhand volley was nearly impossible for the smaller child who did not have the strength to play it correctly. This is not true if it is played off the forearms.

For younger children the game should include as many of the elements of the parent game as possible. They should serve from the back area. Back row players should receive and pass to front row players. Avoid the pitfalls of bad skill practice that are encouraged by allowing the ball to bounce on the floor and continue in play.

It is very important for a recreation instructor to make certain that her participants are enjoying the game. This is a major hazard in volleyball as most women do not come to a recreation center for hours of practice on drills to change old skills. Neither will simply playing the game afford all players a sense of enjoyment. The instructor must be able to judge accurately how much of each to give

to her class to maintain interest. A sense of enjoyment does develop for most women when each player knows and accepts her responsibility to the team, when she has sufficient opportunities to play the ball, and when she feels that her skills are adequate to the game situation.

In order to develop good skills in a class which includes many tradition-bound students, each skill must be introduced separately. Make sure that drill sessions are short and that new skill changes are not suggested until the last one has been fully understood. Constant encouragement for those who are attempting to play the ball correctly is necessary. Equipment should be available before and after class so that those who choose to practice on their own have the opportunity.

Most women arrive in a volleyball class with an adequate underhand serve. The overhand serve can be taught and encouraged but there is no necessity in most instances for long practice sessions. While some people will have the determination to learn the overhand serve, most will return to the serve in which they feel confident.

The most common errors in women's play are failure to move the body behind the ball and failure to face the direction of the intended pass. Anytime the overhead volley is used and the body is not directly behind the ball, the result is a carry. In volleyball the phrases, "Get your body behind the ball," and "Face the person you are passing to," should become bywords.

Use of the underhand open-palm volley is still a common practice in many areas. To completely eliminate this habit it is necessary to arbitrarily declare such a volley illegal. And yet the difficulty does not lie in the skill so much as it lies in the change of the old reaction pattern. As indicated earlier, it is relatively easy to teach this to children who have not had volleyball experience before, but it is extremely difficult to teach women who are accustomed to the old method. Constant reminding and repeated short drills do create an awareness of the mistake being made and eventually, if done often enough, the reaction change can be achieved. Encourage playing with hands together in a comfortable grasp, playing the ball off the forearm, and bending the knees to get the ball. Emphasize avoidance of taking a swing at the ball—the skill is as described—a bounce pass.

The back-to-net play, using open palms, will consistently result in a carry from where the ball is received to where it is released. Students should be guided in the proper position and handling of the ball: hands clasped together, leaning back, and aiming high. Play the ball off the forearms with the body squared away with the

direction the ball is intended to go. For a beginning drill have one player throw the ball high to the others who are already standing back to net. Play the ball as described.

Floor positioning is a weakness of many teams. The right and left front row players should pull back from the net and to the outside with the center back playing forward. This creates a "W" among the back five players so that the floor can more adequately be covered (Figure 1). It is not difficult for a player to realize that it is far easier to move forward to play a ball than to backpedal after it. In addition, when a player is within 2-3 ft. of the net, the only acceptable area in which to pass to her is that short distance between body and net. However, if she is 6 or more feet back this allows a much larger space in which to pass the ball and results in fewer misses.

Game strategy, taught to any age level, helps develop a responsibility to the team. Even the poorest of players does a better job when she knows that she has to play the ball on a particular volley. Encourage the receive, pass to center front, spike pattern. This same pattern, while making the center front player aware of her responsibility for the second ball, also discourages the over-exuberant player from rushing in and taking the play away from a weak player. Since all players get an equal chance at the center front spot, the balance of play is likely to be better.

No matter how much the proper performance of skills is encouraged and taught, skills will never be put into practice unless there is good officiating and calls are consistently made on poorly handled

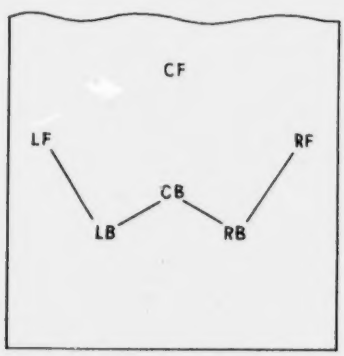

Figure 1. Five back players should form a "W."

balls. Occasionally, in the recreational situation one finds a player or two who, no matter how hard she tries, is unable to handle the ball without throwing it. As long as the game is played for fun, some allowance for inability can usually be made by the official and therefore not spoil the game for everyone.

The future of volleyball is indeed bright. It has been given a tremendous shot in the arm by its inclusion in the Olympics, but whether it is being taught to women, elementary children, or teenagers, and whether it is for fun or competition or for students or teachers, the basic skills remain the same. The variations of the game exist in terms of execution of skills, officiating, team play, and strategy.

Teaching Volleyball Fundamentals

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Ball handling accounts for approximately one-half to two-thirds of both offense and defense play in volleyball. With the game comprised of individual fundamentals such as serving, passing, setting, spiking, and blocking, a great amount of teaching or learning time should be devoted to ball-handling skills (passing and setting). Without mastery of ball handling, the game lags as serving dominates play, spiking and blocking become impossible to perform, and the game becomes dull and noncompetitive.

The term *ball handling* in this article refers to the forearm pass, overhand pass, recovery shots (one arm and back-of-hand), and the set (forward and backward). Stress is placed on the forearm pass and the set, since the remaining ball-handling fundamentals are not used so frequently in a well-played game.

The remainder of the article is in outline form with a brief explanation of the purpose teaching progression, and common faults prepared for each ball-handling fundamental. The explanations are brief and simple so that they might easily be understood by either teacher or student. The beginner or advanced player may benefit from the outline, depending upon the amount of time he places on becoming proficient in each detail.

Ball handling may be introduced as early as the fifth grade without any alteration of the outline. The student should not be allowed to play a game of volleyball until he has had adequate instruction and ample time to develop his ball-handling skills. To facilitate learning, it is suggested that the ball be deflated from one to two pounds below the recommended pressure. It is further suggested that a rubber volleyball not be used, as it stings upon contact. This causes fear and poor habits which prevent proper learning.

FOREARM PASS

The purpose of the forearm pass is to pass the ball to the setter when receiving the serve, when playing the forcefully-hit spike, or when playing any ball below the waist. The ball is passed by the forearms. This technique has replaced the overhand pass in serve reception and the underhand pass for all balls played below the waist.

The ball should be passed to the middle of the court, approximately 15 feet high, and four to five feet from the net. The forearm pass should be accurate so that the setter has a variety of sets available for the spiker. This pass is the key to the game since the success of the set and spike hinge directly upon its accuracy.

Body Positioning

The whole body must be in correct position to assure ultimate success in the forearm pass. Incorrect positioning of any part of the body will lead to a variety of passing problems. Therefore, the individual should always attempt to move *rapidly* to the same correct position before the ball is played.

A. Upper Body: The trunk leans forward with a straight back and a 90-degree angle between the trunk and the thighs. The head is slightly in front of the knees and balls of feet, which are in a direct line. See Figure 1.

   1. The hands are clasped together to insure that the forearms remain level and parallel. There are several ways to clasp hands together; it is a personal preference. However, the clasp should not be tense, allowing the relaxed muscles to help absorb the force of the oncoming ball. See Figure 2.
   2. In this method the hand position is achieved by placing the back of one hand in the palm of the other hand, with the fingers of the two hands resting at 90-degree angles with each other. The thumbs are then rotated over the palms and placed side by side. The palms are not visible.
   3. The elbows rotate toward each other, forcing the soft "meaty" surface of the forearms toward the oncoming ball. The wrists flex toward the floor, which helps force the arms into a straight position in front of the body. The elbow joint remains in a locked position for the duration of play. (*Note:* The musculature of some individuals will not allow the elbows to completely touch.) See Figure 3.

4. The straight arms are held in front of the body and parallel with the thighs.

B. Lower Body: The lower body is in a half-squat position with a 90-degree angle between the thigh and the lower leg.

1. The feet are shoulder-width apart and slightly staggered.
2. The body weight is on the balls of the feet with the heels slightly off the floor. The knee of the forward foot and ball of that foot are perpendicular.
3. The knee joint is at a 90-degree angle with the forearms centered between the knees.
4. The thigh and lower-leg muscles are flexed for quick and powerful reaction. The thighs and the forearms remain parallel.

Ball Contact

Think of ball contact as an attempt to *absorb* or cushion the ball preceding acceleration by the contacting forces.

A. The ball contacts the "meaty" surface of the forearms between the wrist and elbow joints. See Figure 4.

1. The ball is contacted in front of the body with the arms centered between the knees whenever possible.
2. Both arms are level and contact the ball simultaneously.
3. The complete arm (lower and upper) remains locked without bending at the elbow.

B. The harder the ball approaches, the more the ball will have to be cushioned. Often this requires a backward movement of the upper body at the moment of contact. The latest technique involves a backward shoulder roll for ultimate absorption upon contact.

Contacting Forces

The forces which *accelerate* the ball in the opposite direction are executed in one smooth, synchronized movement as the ball is being absorbed upon contact by the forearms.

A. Eliminate shoulder rotation so that the arms do not swing up to meet the ball.

B. The lower body provides sudden acceleration to the ball as the knee and hip joints extend from a 90-degree angle to approximately a 180-degree angle. This is the primary force which accelerates the ball in the opposite direction; however, the speed of the oncoming ball is also a factor.

C. Follow through with the legs in the direction that the ball is played to allow longer contact with it when the speed of the oncoming ball allows such a move. See Figure 5.

Practical Application of Skill

A. Master the technique without a ball.
   1. Stress complete relaxation of forearm muscles.
   2. Concentrate on a smooth, rhythmic movement of the lower body with no arm swing.
   3. Always start from a squat position and return to it immediately after follow-through. Continue repeatedly and rhythmically.

B. Throw ball into air and "bump" it once until complete control is obtained. Progressively throw ball higher.

C. Use a high flat surface (wall) and "bump" ball repeatedly against the wall using proper form each time.

D. Progress to using a partner with repeated "bumping."

E. *Master* each stage of progression before attempting to execute the following one, as bad habits may be formed if progression is too rapid.

Most Common Forearm Passing Faults

A. Contacting the ball on the clasped hands instead of the forearms.

B. Standing too upright; standing flat-footed.

C. Standing in a parallel stance, not allowing quick forward, backward, and lateral movement.

D. Not keeping forearms close together; failing to keep forearms parallel with thighs; keeping arms either too high or too low, causing a poor or impossible trajectory.

E. Not rotating wrists far enough outward, causing the ball to be played off the bone of the forearm.

F. Striking at the ball with the forearms, causing too much acceleration and not enough absorption.

G. Not clasping hands together.

H. Being tense.

I. Keeping arms flexed instead of straight; not watching the ball contact the forearms.

J. Failing to move to play the ball between the legs as often as possible.

K. Not using lower body (thighs and lower leg) for acceleration of the ball.

L. Not following through for ultimate length of ball contact and control.

SETTING

The purpose of setting is to set the ball precisely to the spiker so that it might be forcefully and tactfully returned across the net in as nearly an unreturnable manner as possible. The ball is set by both hands above the forehead, which is the most accurate method of controlling the ball.

There are a variety of sets which vary in height and placement. However, accuracy is more important than variety, so the "regular set" should be mastered first. The regular set is approximately 12 to 15 feet in height, two feet from the net, and near the corner of the front court.

Body Positioning

As the ball is passed, the setter must move rapidly to get his body directly under the ball as it is falling. The body must be in the same correct position each time with the head, hips, and feet in a direct line under the approaching ball to assure consistency, accuracy, and variety in the set.

A. Upper Body: The head, hands, arms, and trunk are in a "ready position" awaiting the pass and advance to a "playing position" prior to contact with the ball. See Figures 6 and 7.

1. The head is tilted back, eyes looking up at the ball, and *directly* under it as it falls.
2. The hands in the "ready position" are at chest level, relaxed, slightly adducted. In the "playing position," the hands are above the forehead with the palms up.
3. The arms are away from the body with the elbows pointing out in a comfortable, natural arc for free movement. Shoulders then rotate as the arms move from the "ready position" to the "playing position."
4. The back is slightly arched and the body is facing the direction that the ball is about to be set.

B. Lower Body: The lower body is in a half-squat position with a 90-degree angle in the knee joint just prior to contact. While

the setter is in the "ready position," the angle at the knee may be in excess of 90 degrees for comfort.

1. The feet are shoulder-width apart and slightly staggered, with the body weight on the balls of the feet. All movement is forward as the ball is played.
2. The legs are at a 90-degree angle for fast movement and power. They aid in the set and allow for longer ball contact, thus better accuracy and "touch."

Ball Contact

Again, ball contact is thought of as an attempt to *absorb* or cushion the ball by use of backward movement preceding acceleration by the contacting forces. Ball contact in the set is quite exacting and requires a high degree of skill to allow a legal contact.

A. Ball Positioning: The ball is contacted directly in front of the forehead. Any variance to either side, behind, or below the forehead may result in the ball's being "redirected" or "thrown"—an infraction of the rules. The ball contacts the fingers six inches above the forehead, and, due to finger and wrist hyperflexion from the force of the ball, it comes within two to three inches of touching the forehead. See Figure 8.

B. Finger Positioning: The fingers must be relaxed for absorption and for maximum length of contact. The finger positioning must always be consistent upon contact with the ball for accuracy.

1. Proper positioning or "cup"—Grip the ball with the fingertips and form an equilateral triangle in the center of the ball with the thumbs and index fingers serving as the sides of the triangle. First rotate the index fingers two inches apart and then the thumbs two inches apart, allowing the remaining fingers to shift comfortably around the ball. The thumbs are at a 170-degree angle and never less. This same "cup" is required for every ball contacted when setting.
2. The ball contact is on the digital areas of the hands and never on the palms.
3. The fingers are relaxed upon contact, and the force of the ball causes them to shift around its surface. The force also causes the fingers and wrist to hyperflex as the arms flex for added absorption. The thumbs, index fingers, and forefingers are the main contacting areas, with the ring fingers and little fingers serving to stabilize the contact.

Contacting Forces

At the moment the ball in contacted, the levers of the finger, wrist, elbow, hip and knee joints are used in one synchronized movement which forces the ball to accelerate in the opposite direction. This synchronization allows for maximum ball contact, which in turn allows for maximum ball control and accuracy. (*Note:* Care must be taken in the areas of ball contact and contacting forces so that the ball does not visibly come to rest in absorption and is not thrown in acceleration.)

A. The big muscles (leg extensors and shoulder rotators) provide the energy for the acceleration, but the smaller muscles (in the fingers, wrists, and forearms) are the most important, as they provide accuracy in addition to limited acceleration.

B. Complete extension (follow-through) for all levers is most desirable even to the extent of the setter's leaving the floor slightly in the direction that the ball is set. *All* movement in the "forward set" is forward upon completion of the fundamental. See Figure 9.

C. Synchronization is very important, as an early extension by a lever does not allow for maximum ball contact. A late extension by a lever results in the ball's being contacted too long, resulting in a rule violation.

Practical Application of Skill

The "whole method" is used to teach complete *body positioning*. However, the "part method" is usually better for teaching *ball contact* and limited *contacting forces* (fingers, wrists, and forearms). Proper finger positioning and contact should be mastered before the complete fundamental or skill is attempted. The "part method" is also more effective in teaching finger, wrist, and arm relaxation for absorption and acceleration.

A. Master the proper finger positioning, or "cup." The body is in a standing position and bending at the waist so that the chest is parallel with the floor. The arms are away from the body in a natural arc. The ball is held approximately 2½ feet in front of the face, which is looking down at the floor. The ball is approximately at knee level. Use the proper finger positioning to hold the ball. (*Note:* This same body positioning is used to teach finger positioning and waist and arm relaxation-acceleration.) Part method.

B. In the position described in A, bounce the ball easily on the floor and eliminate any wrist extension or abduction (isolate wrist movement). Catch the ball as it rebounds from the floor

using the proper "cup." Check the ball-hand relationship, distance between index fingers (two inches), distance between thumbs (two inches), and angle of thumbs (170 degrees); and make sure there is digital contact only. Repeat until correct ball-hand relationship is highly consistent. Part method.

C. (Same body positioning as A.) Bounce the ball on the floor using finger extension and wrist abduction and extension only to accelerate ball. Eliminate arm extension and flexion (isolate elbow and shoulder movement). As the ball rebounds, stress complete relaxation of fingers and wrists. Utilizing the proper "cup" and finger-wrist relaxation, absorb the force of the rebounding ball by allowing it to hyperflex the fingers and wrists. As the force is absorbed, the ball immediately returns to the floor by use of the relaxed finger and wrist levers. To begin, actually catch the ball as it hyperflexes the fingers and wrists and then return it to the floor by use of extension. Gradually speed up the bounce until the ball on contact does not visibly come to rest. *Complete relaxation of the fingers and wrists in absorption and acceleration is stressed.* Do not use the wrist and finger muscles in extension. If relaxed, they will automatically extend due to the force of gravity. (*Note:* Two-minute maximum length as muscles become tense.) Part method.

D. (Same body positioning as A.) Bounce the ball *eliminating* wrist flexion, extension, and abduction. However, now use arm flexion and extension to absorb and accelerate the continuously bouncing ball. Relax as much at the elbow joint as possible to allow the speed of the ball to be absorbed as the arm flexes. The ball is accelerated back to the floor by relaxed arm extension. *Stress* proper "cup," relaxed arm muscles, and no wrist movement. (*Note:* Two-minute maximum.) Part method.

E. (Same body positioning as A.) Bounce the ball on the floor and combine exercise C (finger-wrist flexion, extension, and abduction) and exercise D (arm extension and flexion) into one smooth, synchronized movement. Concentrate on relaxing and maintaining maximum length of ball contact in absorption and acceleration. Backward movement (flexion) of the arms and relaxed fingers and wrists will allow the ball to be cushioned. When the arms start forward (extension), the relaxed fingers and wrists will continue to hyperflex for longer ball contact, and as the arms are fully extended, the

relaxed fingers and wrists will finally extend for a maximum contact distance and accuracy. Part method.

F. Progress from the past exercises of bouncing the ball on the floor to using a partner to practice relaxation, absorption, acceleration, and synchronization. Three individuals are involved in this exercise with one serving as an assistant while the other two perform the task.

The nonperforming individual stands erect, bends at the waist, and places his hands on his knees with fully extended arms. The flat surface of his back, which is parallel with the floor, is used as a playing surface. The ball will now be played across his back by the two performing individuals, thus changing the manner in which gravity acts upon the performer's muscle relaxation. In the previous exercises, gravity aided relaxation upon extension of the levers of the fingers, wrists, and arms, as all extension was toward the floor. Now extension will be parallel with the floor requiring a certain amount of muscle tension to keep the complete arm from dropping to the sides of the performer. *The playing of the ball by the upper body changes from a vertical to a horizontal plane.*

The two performers face each other across the assistant's back. Their lower bodies are in a squat position, simulating the proper lower body positioning explained earlier. The angles at the knee joint and waist may be less than the desired 90-degree angle, depending upon their heights and the height of the assistant.

The upper bodies of the two performers are slightly different than their desired positioning, due to the height of the bending assistant's back and due to the ball's being played on a horizontal plane. The hands are at the side of the assistant's back and slightly above it in a relaxed position with the palms of each performer facing. The arms are in a natural arc away from the body as in proper upper body position.

The performer's back is bowed to allow his head to be positioned directly behind his hands. The head is approximately six inches behind the hands.

Assuming this complete body positioning, play the rolling ball continuously back and forth across the assistant's back. Progress as in the earlier exercises by first stressing finger and wrist flexion and extension, plus proper finger positioning upon ball contact. Gradually accelerate the speed of the ball,

which aids in relaxed absorption and acceleration. After relaxation of the fingers and wrists is acquired in the exercise, add synchronized forearm extension and flexion with limited upperarm adduction and abduction. This leads to a synchronization of the fingers, wrists, forearms, and upperarms for maximum length of ball contact by the upper body. (*Note:* Alternate performer and assistant positions. Maximum length of one minute, as squat position and continuous upper body movement causes tenseness in the muscles.) Part method.

G. The next progression is to setting the ball in a desirable upward trajectory (12 to 15 feet high) through the use of proper body positioning, ball contact, and contacting forces. The use of the lower body is added as a synchronized contacting force in this exercise. The performer throws the ball directly over his head and high enough to allow him to get his *whole* body into proper position to set the ball. The throw must be accurate, so that the ball drops straight down toward the performer's forehead, eliminating excessive movement by the body in centering under the ball. Using proper body positioning, ball contact, and contacting forces, the ball is set directly above his head four to five feet and then caught. Repeat and gradually increase the height of the set as lower body synchronization is obtained. Continue until the set is 12 to 15 feet high and complete body follow-through is learned. The performer may *continuously* set the ball above his head when his proper executed skills warrant the progression. Whole method.

H. When individual skill is attained in the fundamental, progress to setting in pairs. The performers now learn to position themselves properly under a ball played by a teammate. One performer tosses the ball into the air and sets it to his partner, who is approximately 15 feet away (half court). He attempts to set the ball 12 to 15 feet high, in a straight line, so that it drops accurately on the head of his partner. The partner who is receiving the ball quickly positions himself under it. However, the receiver, in correct body positioning with the ball dropping directly in front of his forehead, *catches* the ball. He or the instructor checks his *finger positioning* on the ball, his *complete body positioning*, and the *position of the ball* in relation to his head. The receiver now becomes the setter as he tosses the ball into the air and sets it to his partner. Repeat until each performer consistently maintains proper positioning and accurately sets the ball with the desired trajectory. Whole method.

I. Repeat exercise H, but allow the receiver to immediately set the ball above his own head and then reset it to his partner. Continuously reset the ball. Whole method.

J. Repeat exercise H, but immediately return the ball to the other partner using proper setting techniques. Play the ball continuously. Whole method.

SPIKE

The spike is the method employed in volleyball for forcefully and tactfully returning a set ball into the opponent's court. It is one of volleyball's most exciting fundamentals and should be introduced early in the volleyball unit. The spike can be included as early as the seventh grade. Lowering the net height to several inches above the standing reach of the average-sized student facilitates instruction.

Few sports contain a fundamental more difficult to execute. Despite its complexities, the spike can be successfully taught by breaking the teaching progression into four phases.

Correct Arm Action and Hand Contact

A. Correct arm action and hand contact is the initial phase of the spiking sequence. The breakdown of arm and hand action is as follows:
   1. Contact with the ball should be made with an open, relaxed hand at a point 6 to 18 inches in front of the spiking shoulder. The ideal relationship of the ball to the body must be discovered by the spiker. This relationship becomes an integral part of the spike and must always be attained prior to the actual contact with the ball.
   2. Point of contact on the open hand is somewhere between the base of the fingers and the heel of the hand. The fingers are loosely wrapped around the ball to assure better contact. Prolonged contact will result in increased accuracy and the correct amount of topspin on the ball.
   3. Ball should be contacted slightly above his horizontal axis and directly in line with its vertical axis.
   4. Spiking arm action preliminary to contact resembles an outfielder's throw in baseball. The spiking arm is flexed and cocked, with the upper body rotated to the right (for a right-handed spiker). The wrist is laid back in a position of relaxed hyperextension with the hand open and relaxed. The left arm is extended and raised above and in front of the head to aid in body balance and propulsion during the actual spiking action.

5. During the spike, the body is rotated to the left, receiving impetus from the extended balance (left) arm. Added to this force is the action of the spiking arm. Leading the action, the right elbow is brought forward and upward until it reaches a point directly in front of the right shoulder. During contact, the arm is fully extended and the shoulder is lifted. The lifting action of the shoulder adds extra reach to the spiker, as well as serving as a built-in reminder to extend completely upon contact. The hand, still relaxed and forming around the ball, is snapped through the ball in the culmination of the various forces. If the hand and wrist are relaxed, the follow-through, so essential for imparting topspin and direction to the ball, will automatically occur. If the spike has been correctly executed, the fingers of the spiking hand will be pointing toward the floor after contact.

   (*Note:* The topspin aspect of the spike must be emphasized. Just as a short server in tennis must slice the ball to place it in the serving area, the spiker in volleyball must also impart topspin to a ball set away from the net.)
6. The greater the preparatory backswing, which includes the cocking action of the arm, the rotation of the upper body, and often, the arching of the back, the greater the contributing force to the ball's acceleration. It must be cautioned, however, that spiking accuracy, cleverness, and placement should never be sacrificed for power. However, success is not measured by how hard the ball is hit but in the number of points won or lost as a result of that spike. It should also be stressed that the greater the relaxation of the spiker's arm, the better the hand contact with the ball.

B. Drill Progression
1. Ball is held in nonspiking hand in front of body. Spiking hand is wrapped around ball as in spiking. Repeat several times. Hand is placed on vertical axis and slightly above horizontal axis. Hand and wrist are relaxed. The heel of the hand is first to strike the ball. The top of the hand and the fingers follow through after this initial contact, imparting direction and topspin to the ball.
2. Ball is held at waist height in nonspiking hand and softly hit straight down to the floor. Stress relaxation, contact point, and follow-through.
3. Repeat drill 2, but hold ball above spiking shoulder. Continue to hit ball straight down. This necessitates proper

follow-through. Ball should not be hit hard; it should just rebound head high. Stress control, not power.

4. Form pairs of partners 15 feet apart. Ball is tossed into air in front of spiking shoulder and spiked toward partner. Ball should contact the floor six to eight feet in front of the spiker.

   Points of emphasis: (1) Ball is tossed three feet above and 6 to 18 inches in front of spiking shoulder. As each person spikes, he should attempt to locate his best spiking relationship to the ball. (2) Relax completely. Elbow is bent until ball is contacted. (3) Upon contact, raise shoulder and follow through with entire hand. Students check to see if ball has forward (top) spin. Stress that fingers should point to floor after contact with ball.

5. Continue to work in pairs, but at a distance of 20 feet. Spiker tosses ball into air in front of right shoulder, jumps, and spikes it to floor 8 to 10 feet away.

   Points of emphasis: (1) Same as in 4. (2) Stress tossing ball in front of the spiking shoulder. (3) Emphasize jumping straight up rather than forward. (*Note:* Drills 4 and 5 can be done individually by the spiker standing 12 to 15 feet from a flat, unobstructed wall, and spiking the ball to the floor near its junction with the wall. At first, each rebounding ball should be caught, but after practice, a rebounding ball may be continuously spiked.)

6. Move to volleyball court. Drill as in 5, except hit ball over a net lowered 1 to 1½ feet below recommended net height for age group involved.

7. Same as in 6, but raise net to regulation height.

   (*Note:* Stress hitting out at ball rather than down. Proper topspin will carry ball into court. Move spikers back to a distance five to six feet from net. Spikers not hitting at the ball will drive it into the net. Those hitting out on the ball but not imparting topspin will drive it out of bounds.)

The Approach, Take-off, and Landing

A. The approach

1. A proper approach is one that aligns the spiker with the ball and enables him to attain the correct relationship between the ball and his body. The spiker also uses the approach to develop forward momentum, which is then

converted to upward thrust by using a heel-ball of the foot take-off.

2. The basic position for the spiker is 8 to 10 feet from the net. The distance will depend upon the stride of the spiker.
3. The approach is smooth and correctly timed. The first step is taken in a direction that will align the student with the ball and the net. The spiker approaches with shoulders parallel to the net. This permits greater versatility by enabling a spiker to hit from any position on the court and to the right or left side of the opponent's court.
4. The final two steps are the most important in preparing for the jump. The length of the first step depends on the distance of the ball from the spiker. The greater the distance to travel, the longer the first step. The second step is a shorter step. The back foot is brought alongside to a parallel position. The ankle-to-ankle distance between the feet should be 8 to 10 inches.

B. The take-off

1. At the conclusion of the approach, the spiker should be in the following position: heels parallel and planted in front of the body; legs, hips, and trunk flexed between 90° and 110°; arms extended and swung backward as far as comfortably possible; head forward and eyes focused on the ball.
2. In jumping, the heels are planted hard to take advantage of the action-reaction principle.
3. As the heels are planted in front of the body (to stop forward motion), the arms begin to swing forward. The trunk, hips, legs, and ankles, extending in their proper sequence, thrust the spiker upward.
4. As the spiker's arms reach the top of their upward arc, the spiking position and the upper body, led by the balance arm, are rotated toward the spiking shoulder. The back is arched slightly.
5. The spike is completed by swinging the balance arm down, straightening the trunk, and flexing the wrist, all done in proper sequence.

C. The landing

1. In alighting after the spike, the jumper must learn to flex his legs (crouch) and give upon impact for these rea-

sons: (1) the absorption of impact over a greater distance helps to minimize injury to the back, hip, and foot; (2) dropping to a completely crouched position lowers the spiker's center of gravity, therefore aiding in regaining balance; (3) crouching lowers the spiker's body below net height, eliminating the possibility of falling into the net.

2. The spiker's feet should be spread to shoulder width to broaden the base and improve balance.

D. Drill Progression

1. The first drill is to point out to students the value of the proper arm swing in jumping.

   Form a large single circle facing inward. Crouch and jump three times while holding arms against sides. Next, jump three times, swinging arms only as high as shoulders. Finally, jump three times, permitting arms to swing through vigorously until over-head. Each student now has a kinesthetic feeling of how important the full arm swing is to a maximum jump.

2. A second drill in this series concerns the approach, the jump, and the landing.

   Students form three lines perpendicular to the net. (If the class is large, increase the number of lines to four or five. However, three lines are easier for one instructor to observe.) The first person in line stands 6 to 9 feet from the net, depending upon individual stride length.

   The first person in each line uses the two step approach, ball-heel take-off, and crouch landing. Use cue words "step, step, close, jump, crouch." After the jump, the spiker goes to the end of the line.

   Points of emphasis: (1) Start at proper distance from net; (2) carry arms loosely, but swing them straight back prior to take-off; (3) plant heels in front of body vigorously with feet spread 8 to 10 inches; (4) flex body and legs a minimum of 90 degrees; (5) swing arms vigorously to the overhead position; (6) squat and touch floor with hands when landing (this assures a crouch landing).

3. The third sequence consists of a simulated spike, in which all the fundamentals of the spike except actually hitting a ball are employed. The spiker approaches and jumps, utilizing the correct arm action, and lands using the crouch landing.

Spiking a Stationary Ball

The hitting of a stationary ball provides an opportunity to put all of the spiking fundamentals into effect (with the exception of timing a moving ball).

A. A six-foot ladder is placed four feet away from the net with the steps of the ladder toward the spiker.

B. An assistant stands or sits on the top of the ladder with a ball held in the palm of the hand. The fingers of the ball holder are held together to lessen the chance of injury. The holder's arm is extended and the ball is placed four feet from the net and as high as the holder feels the spiker can reach from his maximum jump. Most beginners do not realize how high they can jump and reach. The holder's job is to encourage the spiker to jump and reach to his maximum.

   If the ball is held lower than the maximum reaching height of the spiker, bad spiking habits, such as hitting the ball without fully extending the arm, will result.

C. Right-handed spikers form a line to the left of each of the ladders (reverse for left-handed spikers). Utilizing the correct approach, arm action, hand contact, and landing, the spiker hits the ball into the opponent's court.

D. Each spiker chases his own ball after spiking.

E. *Points of emphasis:*

   1. Watch holder for incorrect placement of ball—stress holding ball high and away from the net.
   2. Spiking procedures:
      a. Start two steps away from the net. Assume correct relationship to the ball prior to the take-off.
      b. Crouch at take-off. Use heel-ball jumping technique. Contact floor hard for application of action-reaction principle. Plant heels in front of body to stop forward momentum.
      c. Utilizing correct arm swing. The back swing must occur during the last step if forward swing is to be added to the upward forces during the jump.
      d. Hit out at ball with a loosely extended arm. Do not try to spike straight down. Attempt to place the ball into the back one-third of the court.
      e. Crouch during landing.

Spiking a Moving Ball

The fourth progression is a frustrating sequence. The spikers have begun to look skilled in spiking a stationary ball and it appears they will be capable of doing the same with a moving ball. Unfortunately, this is not true, and the problem of establishing the ball-body relationship, coupled with the synchronization essential for hitting a moving ball, results in a difficult experience for teacher and pupil.

Inaccurate setting multiplies the problem and it is recommended that a two-handed underhand toss be used in place of the set. The thrower must learn to toss the ball accurately to the same spot and at the same height. This simplifies the spiker's establishing the correct ball-body relationship.

A. Spiker positions himself near the side line and the correct distance from the net for utilizing the two step approach.

B. Ball is tossed six to eight feet above the net in a trajectory which brings it down near the side line and directly in front of the spiker.

C. As ball is tossed, *and not before*, spiker moves in at the proper cadence, aligning himself with the ball.

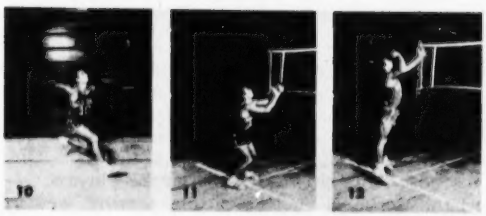
D. When the correct body-ball relationship is attained, spiker utilizes the correct take-off and spikes ball into opponent's court. After employing correct techniques in landing, spiker chases ball and returns it to the next person in line. See Figures 10-14.

E. *Points of emphasis:*

1. Start at correct distance from net. (Most students start too far back.)
2. Do not start in until ball is set.
3. Align yourself with ball on first step.
4. In planting heels for take-off, stay behind ball. Flex legs and body and attain maximum height.
5. In contact with ball, keep arm loose, extend arm, raise shoulder, and hit through the ball.
6. Flex and crouch when landing.

Summary

The spike is one of the most challenging fundamentals of any sport. Students are excited about it and will stay long after class to master the correct technique. When it has been taught correctly, the satisfactions of accomplishment will quickly turn the disinterested participant into a lifetime enthusiast.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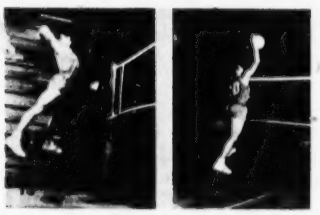

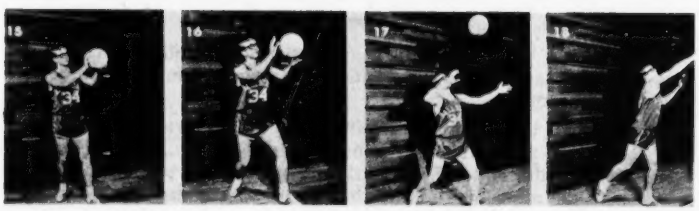
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SERVE

The serve has progressed from a method used basically to start play to a definite offensive threat. The underhand serve has disappeared and the overhand power serve has replaced it. The most commonly used overhand serve is the floater. The round-house and spike serves are also used, but the floater is the most effective and consistent for both beginning and experienced players.

The overhand serve is such a strong scoring weapon that it should not be introduced to the students until their ball-handling skills warrant its introduction. The game could and should be adapted until the ball-handling skills are such that the serve does not dominate the scoring and play.

The purpose of the serve is to put the opponents on the defensive and to score points as a direct result of its effectiveness. The serve, like the spike, is a method of forcefully and tactfully sending the ball across the net in as near an unreturnable manner as possible. However, it is most important that the serve remain in play, and avoiding service faults is of prime importance.

Body Position

The body, for best results, is in the same position before each serve. The server stands immediately behind the end line or at times up to 10 feet back, depending upon the server's preference and power.

A. The body faces the net with the shoulders parallel to the net and end line.

B. The feet are in either a parallel or a slightly staggered stance depending upon personal preference.

C. The knees are flexed for comfort and relaxation. See Figure 15.

Toss-up, Stride, and Correct Arm Action

The serve is best taught by using the "whole method" with the toss-up, stride, and correct arm action all integrated into one smooth coordinated motion.

A. The ball is held in both hands. It is held straight armed at eye level with the server using *extreme concentration* prior to starting the action. The striking hand is on top of the ball with the other hand under the ball for its support and balance.

B. The ball is softly tossed above the head to a height of two to three feet and so that it is about 1½ feet forward of the

shoulder of the striking hand. Care is taken to prevent the ball from spinning. See Figures 16 and 17.

C. While the ball is in the air, the body weight transfers to the back foot to allow the forward foot to step or slide forward.

D. The server's striking arm resembles the arm of a baseball catcher about to throw to second base. It is flexed and cocked, with the upper body rotated slightly to the right (for a right-handed server) as the front foot (left) steps forward. The striking hand is placed next to the ear. The left arm remains out in front of the body for balance.

E. As the ball drops to a position in front of the shoulder of the striking arm, and at head level, the body weight transfers to the front foot.

F. The striking arm is snapped forward from its cocked position, with the hand striking the ball with a forceful jab. The striking arm does not follow through, as such a move would cause the ball to spin rather than float. The speed of the ball will be dependent upon the speed of the striking arm. See Figure 18.

Ball-Hand Contact

There are several methods of contacting the ball with the hand. The important thing is that the ball be contacted the same way on every serve.

A. The three most common techniques are the open hand, the cupped hand, and the knuckler (resembling a baseball knuckle ball). When the hand contacts the ball in each technique, the contact is solid and sharp. The wrist remains rigid.

B. The ball is struck in the center so that the ball will float and not spin. Striking the ball below the midline will cause too high a trajectory and create backspin. Striking the ball above the midline will cause the ball to have topspin and often not clear the net.

Drill Progression

A. The ball is tossed into the air using the proper stance, toss-up, stride, and arm-cocking action. The ball is then caught instead of struck. Emphasize the following:

1. The stance is consistent and the server concentrates.
2. The ball is consistently tossed the same height and same distance in front of the shoulder of the striking arm.

3. There is no spin on the ball.
4. The forward stride is not too long or short.
5. The striking arm is flexed with the wrist rigid and the striking area (hand) properly positioned.

B. Work in pairs, approximately 15 feet apart. The server progresses, from the foregoing drill, to striking the ball. He attempts to serve the ball on a straight line, head height, to his partner, who catches the ball and repeats the drill. Emphasize the following:
   1. The hand-ball contact is a sharp jab with a rigid wrist.
   2. The contact is consistently in the center.
   3. The ball does not spin.
   4. The ball remains in a straight line at head level.

C. Continue to work in pairs, and serve across the net at full-court distance. Emphasize the following:
   1. The trajectory is not too high.
   2. The speed of the serve causes the ball to float and "hop."
   3. The serve is deep in the court and consistently accurate in placement.

Tips for Topnotch Team Play

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Most of us graduate from college with only a small amount of knowledge about many sports, but our more complete understanding comes with actual teaching experience. It is hoped that the ideas presented in this article may aid in building a storehouse of volleyball knowledge.

Why is there this special interest in volleyball? Potentially, it can teach team play, social interaction, and interdependence, as well as develop the physical skills of body control. The following illustrations demonstrate how a well planned and well executed volleyball program can accomplish this potential.

The Program

1. Each player has a definite position on a relatively small court, with virtually all movement coming to a halt after each point or side-out. This is an ideal situation for correcting errors by having the group analyze the errors and for enabling the instructor to give verbal helps to the students during play.

2. Every play is a test of teamwork and cooperation. A good spiker's performance is poor without a well placed set-up; and, in turn, a set-up player is limited without an effective spiker. This reciprocal cooperation becomes essential for success.

3. While faith and trust in the capabilities of others are being built, an important principle of adjusting to the ability of teammates is emphasized. A good player learns to adjust her pass to the less skilled player, so that she in turn may easily handle the ball. This provides the weak player with confidence and the highly skilled player with a feeling of satisfaction from having helped another to succeed.

4. All players can gain satisfaction from successful performance in volleyball. Because aid is being given to the unskilled player by her teammates, and inasmuch as all players have the ability to learn an effective serve, success is assured for the less skilled as well as the skilled.

5. There are few fundamental skills involved in volleyball. Beginners acquire these necessary skills quite early in the learning process. This presents an opportunity for the better players to learn and practice advanced skills within the framework of a begin-

ning unit. It also makes it possible for games to be played early in the unit, so that students are developing a sense of team play as they perfect their skills. All players can learn to play in harmony and unity within this heterogeneous group without sacrificing the skill development or morale of any member in the group.

6. Volleyball surpasses all other team sports as a carryover sport for leisure time. All ages seem to enjoy it, and it is an excellent activity for corecreation. Certainly the feasibility of social interaction through coeducational classes in volleyball should not be overlooked. Volleyball is easily adaptable to coeducational physical education.

Teaching Aids

These possibilities are not achieved by chance, but by a carefully planned program based on the needs of the students, functional methods, and a variety of approaches. The following gimmicks, devices, and verbal pictures are offered as an aid in reaching the potential value of a volleyball unit. The suggestions are not intended to embrace the whole of volleyball, but are hints not often found in descriptions of the game.

A. Fingertip volley tips

1. *Overhand volley.* (See Figures 1, 2, 3.) Emphasize controlling the ball with the thumbs and fleshy part of the first two fingers. The palms do not touch the ball. The follow-through is in the direction of the volley.

Figure 1. Holding the ball.

Figure 2. Release.

Figure 3. Follow-through

2. *Circular motion fingertip volley.* (See Figures 4, 5, and 6.) Contact the ball with the thumbs and the fleshy part of the fingers. The follow-through is in a forward circular motion away from the ball. This skill prevents holding fouls and gives good direction to the volley.

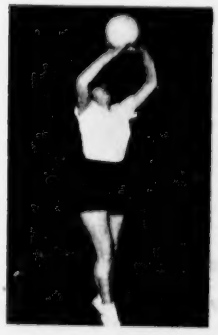

Figure 4. Holding the ball.

Figure 5. Release.

Figure 6. Follow-through.

B. Passing and set-up gimmicks

1. *Stretch a rope taut across the gym from one basket hoop to the other.*

a. Several groups of two players stand on opposite sides of the rope facing each other. They volley the ball back and forth over the rope.

b. If there is a lack of volleyballs, the file formation with five players to each file may be used. After a player volleys the ball, she goes to the end of her line.

c. Player One has her right side to the rope while Player Two has her left side to the rope. The first player sets up the ball to the second. The second player returns the ball across the rope to two opponents in similar positions on the other side.

d. If players are unable to volley the ball as high as the rope, they may practice volleying a basketball over a volleyball net for a short time.

2. *Stretch the rope ten feet high directly above the volleyball net.*

a. Use any drill in which the set-up player stands to the right of the spiker. The set-up player sets up the ball rope-high

while her teammate follows with an offensive volley or a spike.
b. Use any drill in which the server must serve the ball between the rope and the net.

3. *Stretch the rope ten feet high and halfway back on the court.*

a. The back line players must pass the ball over the rope to the front-line players. Use the rope both in drills and during games.

4. *Leave the rope halfway up, and add a rope ten feet high to bisect the net.*

a. Use any drill in which the passer and set-up player must pass and set up over the ropes.

5. *Fasten a strip of tape ten feet high on a free wall, or use a basketball backboard.*

a. Volley the ball to self, or with a partner, above the tape.
b. Volley the ball above the tape from a file formation. Each player volleys once and goes to the end of the line.

General hints: Do not permit catching the ball. Be sure the students use their bodies to add to the force of the volley. Encourage players to move to meet the ball on all drills. Develop a variety of specific drills using ropes.

C. Team-play devices

1. *Group play.* Use one-third of the court, one server, one receiver, one set-up player, one spiker, and one or more retrievers.
Description: The ball is served to the back-line receiver. She passes the ball to the set-up player, who sets up to the spiker. The spiker attempts an offensive volley or a spike. The retriever returns the ball to the server. Each server has five trials followed by rotation of the group. The group earns one point for each successful completed play.

2. *Blind girl's guess.* Use five to eight players and one *blindfolded* player to a group. Each group volleys across a circle, the net, or the rope.
Description: The blindfolded girl listens for a poor hit. (Any sound that indicates the hit was not fingertip-controlled.) When she hears a wrong hit, she says, *poor*. The player making the error gets a *P* and becomes the blind girl. The first player to have spelled out the word poor is the loser. (This helps the players to become alert and accurate about correct volleys.)

3. *Four-girl teams.* Use one-third to one-half of the court. Two net players and two back-line players are on each team.

Description: After an initial serve, three hits must be taken by each team. The serve is a toss-up to self with a chest-high volley. Early in the season, permit an assist to the serve, but omit it as the girls become skillful in volleying. (Use of this serve prevents ball shyness on a serve.)

4. *Covering and backing-up workout.* Use regular teams and court.

Description: The ball is served to any receiver. She catches the ball. All members of her team move to covering, backing, or receiving positions. When correct positions are assumed, the receiver throws the ball to the set-up player and everyone shifts in relation to the play. This continues until the ball is returned to the serving side. The ball is served again, following the same path as on the previous trip. If backing and covering positions are correctly taken, and the volleys are successful, a point is scored by the receiving team. The receiving team becomes the serving team and the same process is repeated. The game continues until each player has played all positions.

5. *Name the receiver.* Regular teams and rules.

Description: One major rule change is necessary. Each player handling the ball must name the next receiver. If indicated player does receive the ball, play continues. If she does not, side-out or point is scored. (Use only with intermediate or advanced players.)

D. Verbal pictures—key cues to action

Correct key cues are the secret to correct sequence of movement. The teacher must find and give the chief sensory cue to the learner so she may use it at the right time. Some key cues of value in helping students perfect their skills and team play are listed below:

1. *Key cues to movement sequence*

a. *To the knees:* Use when a player is not bending from her knees for low volleys.

b. *Stay close, move fast:* Use when a player misses a ball hitting high on the net. A ball hitting high instantly rolls straight down the net; thus the player must move quickly to recover it.

c. *Move back, move fast:* Use when a player misses a ball hitting in the middle of the net. The ball rebounds at once, which calls for instant action for recovery.

d. *Move back, plenty of time:* Use when a player rushes a ball hitting low on the net. A low-netted ball stays suspended for a moment in the net. This gives the player time to get set for the play.

e. *Meet the ball sooner:* Use when a player makes a poor volley because of waiting too long to meet the ball.
f. *Fully extend:* Use for a player failing to follow through with arms and body on her volley.
g. *Eyes on the ball:* Use when a player fails to keep her eyes focused on the ball.
h. *Whole body action:* Use when a player fails to jump to meet the ball, or does not extend the body as she volleys.

Volleyball—A New Challenge

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Volleyball, now an Olympic sport, has come of age! Interest and enthusiasm are sweeping the country. Exhibitions, clinics, and workshops are being planned and sponsored by expert coaches, teachers, and players throughout all parts of the United States. This recent activity comes as an attempt to further the growth and acceptance of this fine team sport. The time is right for the physical educator to provide the opportunity to learn basic skills and strategies as they are related to the modern game of volleyball.

Good techniques and skill progressions can make volleyball a game that is fun, exciting, and challenging to the teacher as well as to her students. Why not introduce a new sport with an old name? Change old ideas and playing habits with determination and enthusiasm and accept the challenge to *teach* volleyball. A little extra effort and consideration in planning the program will certainly allow for much greater success in meeting this challenge.

Equipment and Facilities

Indoors. This is the ideal situation, using leather balls whenever possible.

Outdoors. Cement and asphalt ruin leather balls, but perhaps last year's leather ones could be used. If it is necessary to use rubber balls, stress keeping fingers back and using the inside of the forearm for the bounce pass. Suggest wearing long-sleeved sweatshirts and/or gloves for cold outdoor play. The sting of a rubber ball may take the zest out of a good game.

General. Balls, and lots of them, make the program. Volleyballs in the storeroom are a waste. Use them all this year. One ball for every two girls will keep skill development and interest at a peak as players are continuously involved in activity. If equipment supplies are low, adapt drills for as much activity as possible.

Warm-Ups and Conditioning

Running and jumping in place, trunk-twisting, leg-stretching, and arm rotation are excellent exercises for beginning the day's volleyball activity. Rope-jumping and sprint and distance running are fine conditioners and should be part of every physical education program. Variety will make warm-up periods more interesting.

Most passing drills and practice situations can be used for warm-up and conditioning. Shuttle-passing with just three people is a sprint relay if players can keep the ball moving. Hitting the ball 15 to 20 times in succession will challenge the best athletes in any class.

Physical education instructional programs should provide for the learning of basic skills of the game. The order of skill presentation should lead progressively into game-play situations. The following are suggested teaching progressions for the major volleyball skills:

A. *Pass*

1. Explain and demonstrate hand position, point of contact, and body position.
2. Partners alternate toss and pass.
   a. Beginners should be organized so that they pass straight ahead to their partners. This will help to reduce hitting errors and the development of poor technique.
   b. If large groups require circle formations, have students pass *across* the circle.
   c. Instruct beginners to catch a poor toss (passes later) and repeat the throw rather than practice poor technique.
3. Individuals practice against wall.
4. Partners pass back and forth continuously.
5. Partners alternate tossing and passing but not directly to each other, so that passer learns to move into correct position.

B. *Set*

(Same technique as pass, but utilization of pattern drills develops specific duties of setter.)

1. *Square passes*
   a. Players must learn to face direction toward which they intend to pass, as they receive passes from other direction (Figure 1).
   b. Reverse direction of ball to practice passing as ball comes from other side of player.

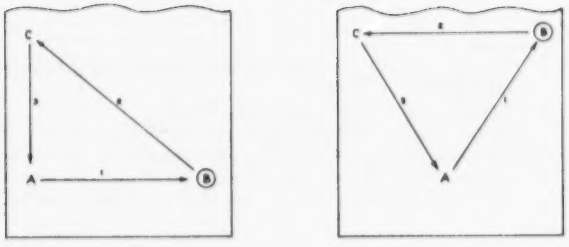
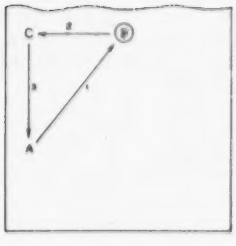


Figure 1

2. *Triangular pass patterns*
   a. Player in setter's position practices using a variety of heights and widths of passes as she sends ball to player in spiker's position (Figure 2).
   b. Passer sends ball to center of court, causing setter to move away from her net position to face player in the spiker's position *before* she sets to her (Figure 3).



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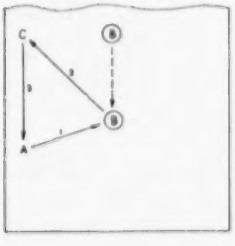


Figure 3

KEY
A—*Player in passer's position*
B—*Player in setter's position*
C—*Player in spiker's position*
⟶ — *Path of ball*
⇢ — *Path of player*

c. Practice sets from back-court position, using same triangular pattern (Figure 4).
d. Practice cross-court sets (Figure 5).
Note: *Players should rotate positions after short periods of time so that each has the opportunity to develop setting skills. Also, each of the above drills should be organized on the right side of the court as skill proficiency develops.*

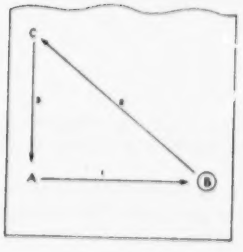


Figure 4

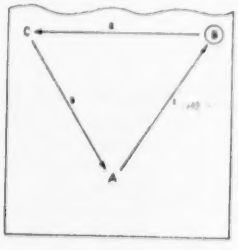


Figure 5

3. *Front and back set patterns*
a. Player A faces player B and sets first pass to her. Player B returns the pass to player A, who back-sets to player C. Player A then turns and faces player C to receive pass from her. Player A repeats pattern with player C (Figures 6 and 7). This pattern is continuous, and players should rotate positions after short periods of time.

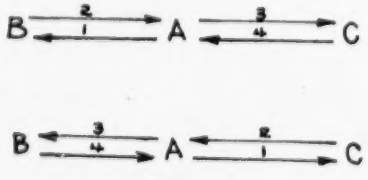
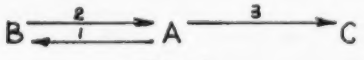


Figure 7

KEY
⟶ — Path of ball
1, 2, 3, & 4 — Sequence of passes

b. Variation of the above pattern encourages players to move to play the ball. Setting sequence is A to B to A, who back-sets to C (Figure 8). B and A then exchange positions and C sets to A (Figure 9).



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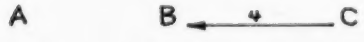


Figure 9

The entire pattern is then repeated in the new positions. Thus, B to C to B, who back-sets to A (Figure 10). C and B then exchange positions and A sets to C (Figure 11).

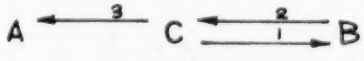


Figure 10

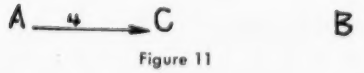


Figure 11

C. *Bounce pass*

1. Explain and demonstrate arm and body position.
2. Partner tosses ball easily to passer.
3. Partner tosses ball easily to passer's side; partner must move to play ball from in front of her.
4. Increase force of tosses to passer.
5. Increase force of balls as they are tossed toward side of passer. (Discourage use of side bounce pass with arms tilted; passer should move to play ball from in front of her.)
6. Vary direction of tosses to side, front, and back of passer so she must move quickly to play the ball.
7. Vary height and force of passes to partner who must determine which type of pass she is going to use to play the ball.

D. *Spike*

1. Explain and demonstrate arm action and point of contact.
2. Practice hitting ball straight toward ground; increase force of hit.
3. Play Chinese handball against a wall; hit the ball diagonally toward the floor, causing ball to rebound from floor to wall. As the ball rebounds from the wall, player hits it diagonally toward floor again (Figure 12).

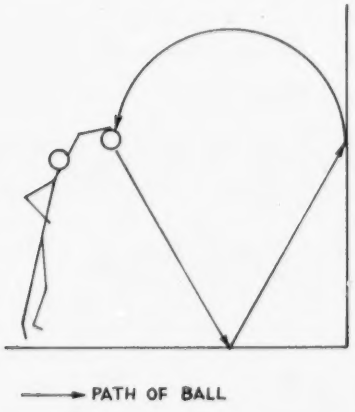


Figure 12. *Overhead Spike Pattern*

4. Pepper drills
   a. Leader and group formation: Leader spike-hits the ball to each one in group; each bounce passes to return ball.
   b. Partners only: One spike-hits to the other, who uses a bounce pass to return the ball. First player then sets the ball to her partner, who begins sequence again by spike-hitting back to her.
   c. One spiker, A, and two receivers, B and C: A spike-hits toward receivers. Either B or C moves toward the ball and attempts to bounce pass straight upward; the other receiver then moves to set the ball to the spiker. Sequence is repeated with A spike-hitting again.
5. Stationary jump and hit a tossed ball at net position.
6. Practice three-step approach ending with a jump-reach. (Use two-footed takeoff for jump.) Repeat, using suspended object,

such as a basketball net or string hanging from backboard, as a target for jump-reach. Players should practice hitting with as much force as possible at height of jump-reach.

7. Approach and spike a tossed ball at the net.
8. Approach and spike a set ball at the net.
9. Practice spike on both sides of the court.
   a. On-hand hit—the player's spiking hand is nearest the center of the court.
   b. Off-hand hit—the player's hitting hand is nearest to the side line.
10. Spike toward various angles of the court (i.e., cross-court and down the side lines).

E. *Overhand serve*

1. Explain and demonstrate arm action and point of contact (similar to spike pattern, but point of contact is on back underside of ball).
2. Player stands approximately eight feet from partner or wall, tosses ball slightly above head, and hits straight toward partner or wall.
3. Increase distance from target as control develops.
4. Serve ball over net from midcourt position.
5. Gradually increase distance from net as players improve.

Unit planning is a very important phase of the instructional program. The basic, or beginning, unit should be constructed in such a way that it meets the needs of every girl. The experiences each girl encounters as she is introduced to a new sport should be challenging to her. It is the beginning unit that must provide for the development of a broad repertoire of skill abilities, thereby allowing for further development of advanced techniques. Also, programs must be planned to meet the needs of the more highly skilled so that they, too, may be challenged to reach higher levels of achievement. Whether it be planning for the school, college, or recreation program, the structuring of unit content must follow a meaningful progression from the basic through the advanced.

F. *Beginning unit* (Numbers indicate sequence)

Basic	Offense	Defense
1. Pass	4. Play strategy (1-2-3)	7. Court positioning (playing)
2. Bounce pass	5. Overhead spike pattern	9. Court positioning (serve reception)
3. Rules	6. Basic setting	10. Game play
	8. Underhand serve	

In the beginning unit, a special emphasis must be placed on developing good passing skills, as this technique is essential to good volleyball. The offensive strategy, 1-2-3, is simply a pass, a set (which is also a pass), and a spike. These three skills will comprise the major part of practice drills regardless of the player's skill level. Game-like drills and/or game-play situations should be included daily in the beginning unit.

An understanding of court positioning is also important. Too often, players use the extreme front-back position shown in Figure 13. The hole in the middle is only slightly smaller than the Grand Canyon! In this formation, the three front players will be playing for balls that would probably hit the net, while anything above the shoelaces of the backcourt players is certain to hit behind the end line. However, the player positioning shown in Figures 13 and 14 allows each player to be able to cover the greatest amount of space in her position and yet be ready to change to offense as soon as they control the ball.

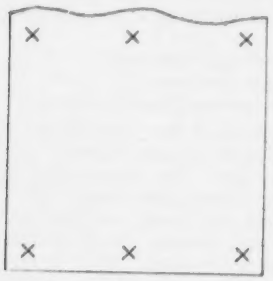


Figure 13
(Poor)

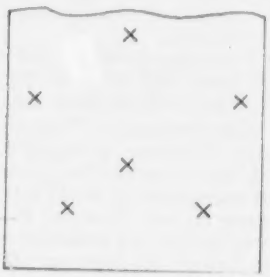


Figure 14

The formation in Figure 15 is quite effective for serve reception, especially if the other team is getting power on their serves. Again, this brings the back court players away from the end line.

The serve is an important offensive technique, but it can be introduced late in the unit. For young beginners (junior high school age), throwing the ball over the net will suffice until the other basic skills are learned, whereas for high school girls, the underhand serve should already have been learned and should merely need to be reviewed. Game play should be planned as soon as possible so that skills can be put into practice and learning becomes more fun.

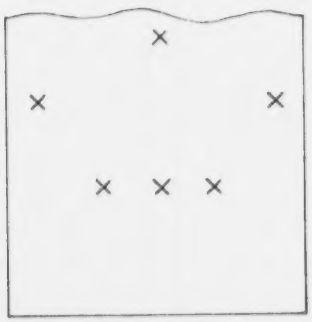


Figure 15

G. *Intermediate unit* (Numbers indicate sequence)

Basic	Offense	Defense
11. Pass	14. Play strategy (3-3)	17. Defensive bounce pass
12. Bounce pass	15. Setting (placement)	18. Defensive court positioning
13. Rules	16. Spiking (placement)	a. Spike
21. Game play	19. Overhand serve	b. Free ball
		20. Serve reception

The intermediate unit reviews the basic fundamentals and develops them further as described in the major skill progressions. The players should have progressed from the beginning stages of development and can be expected to move the ball with greater speed, force, and control. Players begin to specialize as the offensive play strategy advances to the 3-3 system, known as the partner-pair pattern of offense. This system employs the use of three setters and three spikers, but divides them into three pairs for use as partners. Each pair is composed of a setter and a spiker. Positions are often determined by ability to pass, to move, and to think quickly (setters), or height and jumping and spiking ability (spikers or hitters). These skills are further developed through the utilization of the setting and spiking drills as they are listed in the major skill progressions.

Also, at this level, a greater need arises for the development of a defensive play pattern. In many cases, the types of court position-

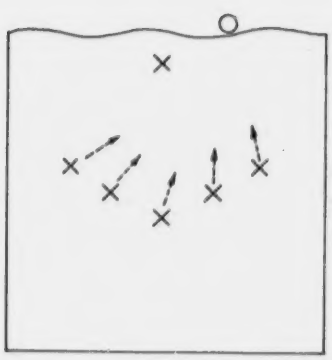


Figure 16

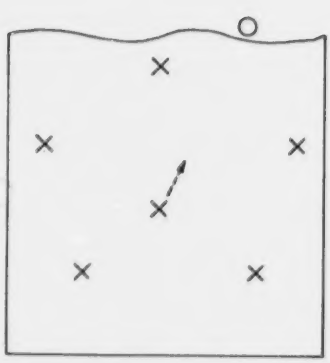
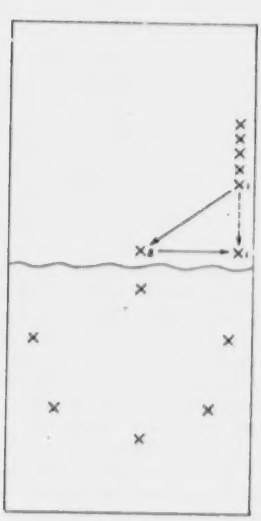
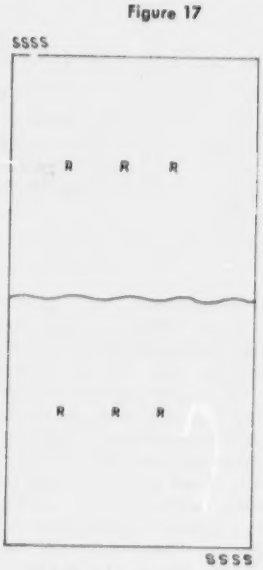


Figure 17



× PLAYER
→ PATH OF BALL
- - → PATH OF PLAYER

Figure 18



S SERVERS
R RECEIVERS

Figure 19

ing will depend on the ability of the other team. However, one effective method of defensive court coverage is to have the players form a semicircle and face toward the direction of the ball. Each girl slowly moves in a straight line toward the ball after it has been set, ready to defend her share of the court. The cross-court players are ready for the power hit, whereas the setter and the line players are responsible for the slower moving dink and any other hit that just clears the tape of the net (Figure 16).

If opponents lack spiking strength or frequently miss their hits, the center back may play a roving position in order to cover the middle section of the court (Figure 17). When the spike is coming from the opposite side of the court, the setter should shift slightly to the right so that the center back can more effectively cover her section.

Drills that combine the use of many techniques provide for game-like situations that can and should be implemented into practice sessions. Figure 18 indicates this type of drill. As the first player in line at the side of the court passes to the setter at the net, the setter in turn sets the ball for a spike to be executed by the first player. In the opposite court, the players can practice their defensive positioning and skill techniques at the same time. Again, all players should rotate after a short period of time.

The overhand serve and the spike are regarded as major offensive techniques and should be included in the intermediate unit. Practice and accuracy will result in winning many points. Students will be surprised how quickly and easily they can learn this serve.

Once the serve is mastered, a serve and receiving drill can be used to develop both skills. Players should take the positions shown in Figure 19. Servers from each end line can serve to the receivers on the opposite side of the net. As accuracy develops, a server can attempt to place her serves to a certain receiver. Also, a setter can be used to practice sets with the bounce passes as they come from the receivers.

The program designed for the most highly skilled and advanced players concentrates chiefly on the finer aspects of team play. The sequence in which various skills and knowledges are to be introduced is not as clearly defined in the advanced unit; such does not seem necessary since these aspects represent a culmination of all previous experiences. The skill-drill activities are dependent on the individual player and her needs. Major skills cannot be overlooked as these must be practiced and drilled until players have acquired proficiency in execution. It will take many long hours of determined practice and great distances of court mileage for top players to be able to meld into a quality team.

H. *Advanced Unit*

OFFENSE	BASIC	DEFENSE
Sets	*Strategy*	*Serve defense*
Cross court	Defense	Types of serves
Back court	Offense	Cover weak players
Back and front	Substitutions	Coverage of court
Half court	Time-outs	*Court coverage*
Hitter (Spiker)	Court talk	Offensive
Hit various types of sets		Defensive
Dinks		Covering spiker (backing-up)
Serve		Net recovery
Floating		Blocking
Top-spin		Rolls; floor work for recovery
Short serve		
Curve and dive		
Roundhouse		
Serve strategy		
Weak passer		
Weak side of court		
Off-hand hitting side		

Physical education teachers, with their knowledge of modern skill progressions and team sport strategies, are in a unique position to help further the growth of this challenging sport. With their enthusiasm and determination, they can help volleyball gain the prominence it deserves.

Let's Teach Strategy for Tournament Play

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Tournament play can be enjoyed by players of all skill levels, but the greatest enjoyment in participation comes with improved skill. When each individual has been afforded the opportunity to develop her own playing skills, then a team can prepare for tournament play at all skill levels. Everyone should be encouraged to engage in tournament play, regardless of present skill level, with further encouragement to increase the skill level for greater eventual enjoyment.

Round-robin class tournaments can provide the students with an opportunity to apply basic skills to team play during the final phase of an instructional unit. With consistent enforcement of throwing, holding, and catching rules, the practical application of basic playing skills in actual game situations can be accomplished. "Just get it over" has been the major strategy of volleyball, disregarding any consideration of team play. Too often the game is played as a game of "throw-ball" rather than "volleyball." Even in the first tournament games the officials should insist upon good playing skills. Student officials should be encouraged to call all fouls as they occur.

Developing a basic set of play patterns is essential to team play. Simple play patterns should be presented to all players so that each player is capable of knowing her role in the total team effort. By limiting the basic patterns to a simple formula, everyone can easily grasp the teamwork element of volleyball. Through the use of basic play patterns, a team will improve its effectiveness and provide greater enjoyment for everyone. Advanced forms of play patterns are possible only when every player understands and can execute basic play patterns.

All play patterns are based on individual skills, including the serve, the serve receive, the pass, the set-up, the spike or hit, the block, and the dig. The overhand serve is the most effective offensive weapon of any team. The most important aspect of the serve is to get the ball into the opponents' court and make it as difficult as possible for them to return. The serve receive is one of the most difficult skills to perfect. A basic pattern for serve receive is one called the "crescent." The crescent formation provides five receivers,

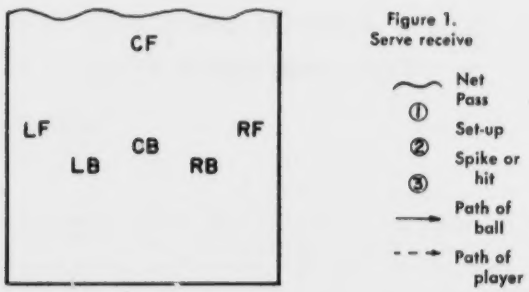

Figure 1.
Serve receive

each of whom has a specific area to cover and a clear unobstructed view of the server. The sixth player (center forward) is placed so that she is in a position to receive the pass and execute the set-up (Figure 1).

The pass is the key to the entire strategy of volleyball. A team must develop passing ability in order to receive the serve effectively. The pass may be executed by a two-hand overhead technique or by the dig. The pass is essential to the set-up, and the set-up is essential to the spike or hit. The most common and basic play pattern is pass, set-up, spike.

Concentration upon basic passing patterns provides order and simplicity to basic strategy. The center forward should have the primary responsibility for receiving the pass and then setting it up for the spike or hit. The spike or hit should be the primary responsibility of either side front player. The center forward is also in a spiking or hitting position, but should concentrate upon providing variety in her set-ups to one side front or the other. Keep the basic strategy simple so that all can fully understand their role in the total play pattern (Figures 2-7).

The play patterns illustrated herein are basically the same. The variety of the pattern is determined by the following: 1) Which player receives the ball from the opponents; 2) how well the pass is executed; 3) how much variety the center forward uses in setting up to one side front or the other; 4) how well the set-up is executed; 5) the ability of the side front players to execute the spike or hit; and 6) the variety of direction in the spike or hit.

Basic defense patterns are based upon each player's individual skill and a team's ability to cover the most probable angle and area in which the ball might be directed. Front line players should make every effort to block the opponents' spiking attack. Each player

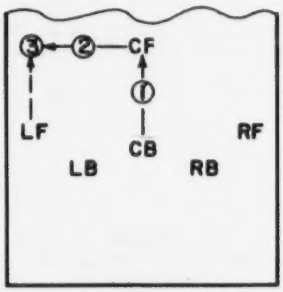

Figure 2.
Pass from CB

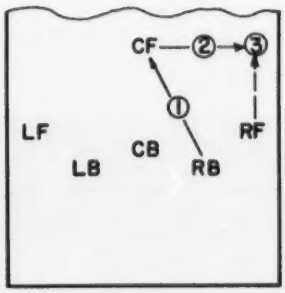

Figure 3.
Pass from RB

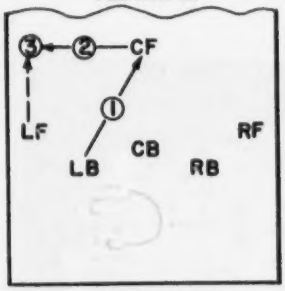

Figure 4.
Pass from LB

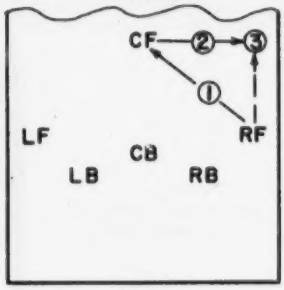

Figure 5.
Pass from RF

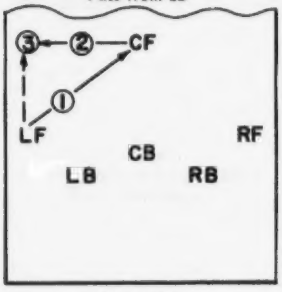

Figure 6.
Pass from LF

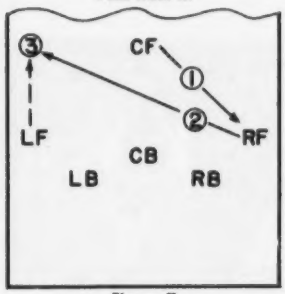

Figure 7.
Pass from CF

must be on her toes at all times, and be ready to cover each other on every play. Every team member, exerting maximum effort to keep the ball legally in the air, is the key to an effective defense. (Figures 8-10.)

Figure 8.
Ball in play on left side of opponents' court

Figure 9.
Ball in play at center of opponents' court

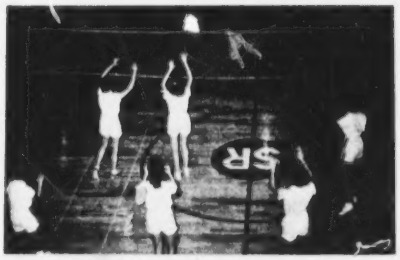

Figure 10.
Ball in play on right side of opponents' court

Developing Skill in the Volleyball Pass Through Conditioning

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The volleyball pass is one of the first skills a player needs to develop if she is going to participate in a challenging game in which good team play is involved. Many junior high school girls have difficulty in developing a good pass with a high arc and sufficient horizontal distance; the major problem in attaining the high arc appears to be lack of strength. In an attempt to find a good approach for developing passing skill, a study was conducted to examine the effects of conditioning the hands, fingers, and arms in the development of a good volleyball pass. The subjects were 31 seventh- and 21 eighth-grade girls, divided by random procedures into control and experimental groups within each grade.

A good volleyball pass was defined as one in which the ball traveled a horizontal distance of 15 feet and a vertical distance of 13 feet, and was projected with an initial velocity of 23.65 feet per second at an angle of 66 degrees. Both groups received the same general instruction in regard to these goals, but the skill development approaches for the two groups differed. The experimental group was conditioned in addition to having skill practice, whereas the control group merely had skill practice. The same amount of time was spent in skill development in both groups.

The approach to developing passing skill for experimental subjects employed the use of a conditioning program in which an attempt was made to strengthen the muscle groups used in performing the volleyball pass (shoulder flexors, elbow extensors, wrist flexors, and finger extensors), by overloading them in the exercises used in the conditioning program. This meant that the intensity of the work required of those muscles had to be increased. This was done in two of the four exercises used by providing a greater resistance against which the muscles had to work. In the other two exercises, the intensity of work required of the muscles was made greater by increasing the duration of the exercise each day.

A description of the four exercises in the conditioning program follows:

1. Grip strengths of right and left hands were taken, using an elliptical hand-dynamometer scaled in kilograms. The intensity of

this exercise was increased by adding one more grip to each day of exercise. The subject then progressed from taking one grip strength trial on the first day to taking six on the sixth day. These grip strengths were recorded in order to act as a stimulus for conditioning.

2. Ten push-ups were done against a wall, with the body being supported by the fingertips. The number of trials for this exercise was kept constant each day, but the load of the muscles was increased by having them work against a greater resistance than on the previous day of exercise. This was accomplished by having the subjects increase their distance from the wall. Prior to the onset of the conditioning program, an arm's distance away from the wall was measured for each subject. In measuring this distance, subjects stood erectly with palms flat on the wall, arms parallel to the floor, with extension at the elbow joint. A piece of tape was then placed on the floor just in front of the subject's toes. This tape was moved back three more inches each succeeding day of exercise. Extension of the body and legs, a slight spread of the fingers, and the support of weight by the fingertips only were checked throughout the exercise. This exercise was performed to a slow count of ten, moving toward the wall, holding, and pushing away.

3. The rubber ball exercise was performed, starting with 10 trials per hand and increasing five more each day. Subjects were told to close their fists tightly around a rubber ball two inches in diameter and then open them until the fingers were maximally stretched.

4. Ten trials of the overhand pass over a 12-foot rope were taken each day, starting with a volleyball the first day, progressing to a soccer ball on the second and third days, and using a basketball the three remaining days. Because of the increased weight of the ball, the muscles were required to exert more power. Subjects worked in pairs for this exercise, and the number of successful passes over the rope were recorded each day as a motivating device.

The time allotted for the daily conditioning and skill practice ranged from 15 to 25 minutes. A schedule of the conditioning program with the time expended on each day's exercise is given in Table 1. The program was concentrated in 50-minute class periods extending over three weeks.

Development of skill in passing through practice of the skill only was the approach used with control subjects. These subjects, working in pairs, practiced passing the volleyball over a 12-foot rope. With masking tape, a line was placed on the floor nine feet away from the rope for a horizontal distance goal. A restraining line was also placed 6.5 feet from the opposite side of the rope. Each girl kept a daily record of the number of times she passed the ball over the

12-foot rope so that it landed on or near the horizontal distance line. This was done as a motivating device and provided a record of improvement for the student. This pass practice lasted as long as the conditioning program each day so that an equal amount of time was spent in the two approaches to skill development. Each subject had to complete a minimum of ten pass trials each day; however, most subjects exceeded this minimum.

TABLE 1. CONDITIONING PROGRAM FOR THE VOLLEYBALL PASS DURING THE FIRST THREE WEEKS OF A FIVE-WEEK VOLLEYBALL UNIT

Class Period	*Minutes Per Class*	*Exercises*
1	15	1. One dynamometer grip per hand 2. 10 finger push-ups at arm's distance from wall 3. 10 trials of rubber ball exercises per hand 4. 10 trials of volleyball pass over 12' rope using a volleyball
2	15	1. Two dynamometer grips per hand 2. 10 finger push-ups at arm's length plus 3" from wall 3. 15 trials of rubber ball exercise per hand 4. 10 trials of overhand pass, five using a volleyball and five using a soccer ball
3	20	1. Three dynamometer grips per hand 2. 10 finger push-ups at arm's length plus 6" 3. 20 trials of rubber ball exercise per hand 4. 10 trials of pass using a soccer ball
4	20	1. Four dynamometer grips per hand 2. 10 finger push-ups at arm's length plus 9" 3. 25 trials of rubber ball exercise per hand 4. 10 trials of pass, five using a scoccer ball and five using a basketball
5	25	1. Five dynamometer grips per hand 2. 10 finger push-ups at arm's length plus 12" 3. 30 trials of rubber ball exercise per hand 4. 10 trials of pass using a basketball
6	25	1. Six dynamometer grips per hand 2. 10 finger push-ups at arm's length plus 15" 3. 35 trials of rubber ball exercise per hand 4. 10 trials of pass using a basketball

Note: The time consumed for the daily exercises did not include the time for taking the hand dynamometer grips. Since only one dynamometer was available, the grips for each subject were taken at various times during the same day of the specified exercises.

The effects of the two approaches to developing passing skill were determined and compared by measuring pass performance at the end of the skill development period. Skill in performance on the volleyball pass was measured by the procedures suggested by Liba and Stauff.[1]

Analysis of variance techniques were used to examine the data, and the results supported the following conclusions:

1. The conditioning program of planned exercise supplementing pass practice is an approach to developing skill in the volleyball pass superior to that of developing the skill by means of practice only, under the conditions of this study. There is a significant difference in passing skill in favor of the experimental groups that had the conditioning program.
2. Since the interaction between grade levels and approach was not significant, the conditioning approach to skill development is equally successful at the seventh- and eighth-grade levels. Evidence indicates that the use of a conditioning program in developing volleyball passing skill is a valuable learning procedure to be applied at the junior high school level. Using such exercises as part of the volleyball program produces greater skill than can be gained through practice alone. Hence, there is sufficient evidence to warrant the use of the conditioning approach to skill development as a teaching method for the volleyball pass.

The volleyball pass test used in this study is a reliable measure of passing ability and has several merits as a good test to be used in the physical education class. It can be easily administered in a relatively short time, to large classes as well as small. The test can be used for practice as well as for testing purposes. Students can easily administer the test, thereby providing the instructor with more time to give assistance to students in the mechanics involved in the pass. A student can keep her own evaluation record, and by observing the ball flight she may be able to improve her movement to meet the objectives of a good pass. The test can also be used to provide objective evidence for evaluating teaching procedures as well as to diagnose the difficulties of the students. Hence, this test is valuable to both teacher and student as a measuring device which becomes an objective guide to diagnosis and evaluation.

[1] Liba, Marie R., and Stauff, Marilyn R. "A Test for the Volleyball Pass." *Research Quarterly* 34: 56-63, March 1963.

Activities for Large-Group Teaching

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Mt. Pleasant, Michigan

With an increase in class size and a decrease in the number of players on an official volleyball team, the teacher faces a problem in presenting the game of volleyball to her classes. If the student is to acquire knowledge and skills in these large classes, it becomes imperative that the teacher devise activities which will afford the most possible practice in the basic skills. It is also important to select activities which utilize the basic skills involved in the game and which can be performed under conditions as they exist in the actual game situation. The following activities are suggested because they require basic skills and emphasize the game situation.

Basic Skills Games

Wall Volleyball (Figure 1). Draw a line seven feet high on the wall. The members of each team are scattered and hit the rebounding ball alternately against the wall. A point is scored against the team that last touched the ball if it hits below the line, touches the floor, or is not hit by the alternate team.

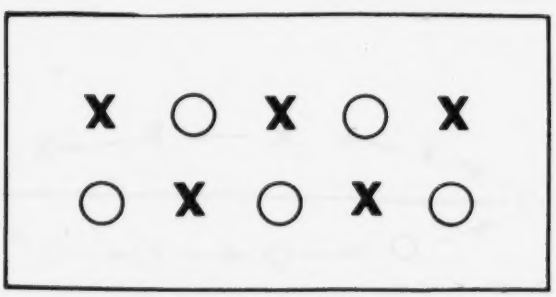

Figure 1. Wall volleyball

Keep-up (Figure 2). Have several groups of girls stand in circles. At the signal *go*, each group attempts to keep the ball up. Each player counts successively as she contacts the ball. If the ball hits the floor, the consecutive hits are canceled and the team must start over.

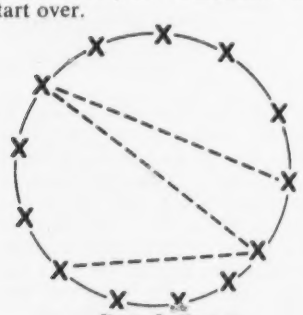

Figure 2. Knee-up

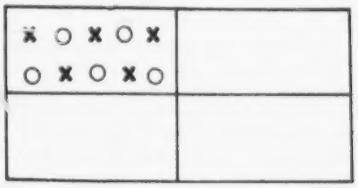

Figure 3. Keep-away

Keep-away (Figure 3). Scatter the players in a designated area. The players of one team attempt to hit the ball to their team members. If the opposing team gain possession of the ball, they hit it among their team members. The score is the number of consecutive hits among team members.

Circle move (Figure 4). Place two standards open at the ends with a net or rope between them. Place three girls on each side of the net and one at each end. As each ball is hit over the net, the group rotates one position clockwise.

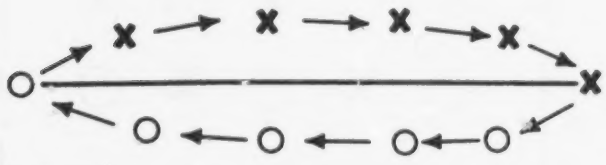

Figure 4. Circle-move

Center keep-away (Figure 5). Place the players in a single circle with some players in the center of the circle. The outer groups may hit the ball to each other. The players in the center area can move out if they can touch the ball.

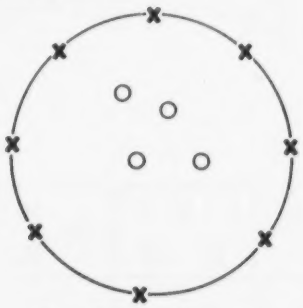

Figure 5. Center keep-away

Four-area volleyball (Figure 6). Place the nets lengthwise and crosswise in the room. (If, when putting up the nets, you place one set high and one set low on the center pole, you can get four areas.) Put players in each area. The server may serve the ball over either net bounding his area. The players may play the ball over any net bounding their area. One point is scored against a team if the ball hits the floor in its area. More than one ball may be used; however, all balls should be played until they are dead before the serve is repeated.

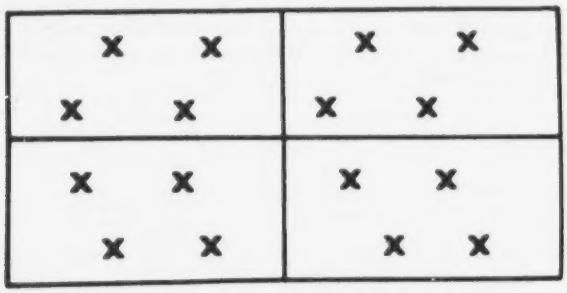

Figure 6. Four-area volleyball

Alley volleyball (Figure 7). Section off the length of the floor into four playing areas. Distribute the team members in each area. Each team in the first area has a ball. The object is to keep it up and pass it to team members in the next area. The first team to get the ball to the other end of their group without the ball's touching the floor scores a point.

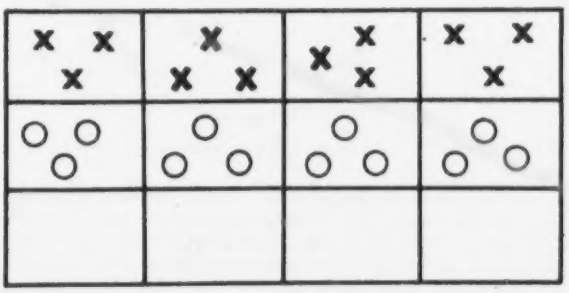

Figure 7. Alley volleyball

Catch or hit. Place the players on either side of a net. The ball is served from the center back position. A player can choose to catch the ball and return it with a throw or return it by a hit. One point is scored if a thrown ball is missed; two points are scored if a hit ball is missed.

A Suggested Volleyball Unit for the Fourth Grade

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Research tells us that today's child is maturing physiologically, anatomically, and culturally at a much younger age than formerly. Espenschade [1] said that today's seventh graders are comparable to ninth graders of 25 years ago. Children are capable of learning specific skill patterns earlier than many people realize. Hunsicker [2] has stated that a child by the age of ten has the neuromuscular potential to master the skills required in practically any physical education course offered at the college level. The child does not have the strength or size to match the performance of college students, but he does have the potential of maturity and the neuromuscular skills.

Since children have the neuromuscular potential for learning the basic skills of volleyball, a careful selection of lead-up games from grade to grade would permit the learning of skills, rules, and strategies comparable to those of the official parent game. Many lead-up games recommended for grades four to seven have elements which violate the principles of good volleyball techniques and which help to develop bad habits. These in turn create a tendency for students to foul when they play the official game.

Net ball and newcomb are interesting and challenging games for third and fourth graders. However, both rely on throwing and catching, which are fouls in volleyball. The scoring of a point on each serve makes it difficult to learn the official volleyball scoring.

One-bounce volleyball encourages the use and development of the two-hand underhand volley, which is not recommended and is infrequently used in good volleyball play. Use of the underhand volley, as it is traditionally taught, encourages catching and holding. It is quite difficult to learn good volleying techniques when the ball must be approached from the low height that the bounce provides.

[1] Espenschade, Anna S. *What Research Says to the Teacher: Physical Education in the Elementary Schools.* Washington, D.C.: NEA Department of Classroom Teachers, 1963.

[2] Hunsicker, Paul. *What Research Says to the Teacher: Physical Fitness.* Washington, D.C.: NEA Department of Classroom Teachers, 1963.

It would seem more logical to modify the size and weight of the ball, size of the court, height of the net, and games rules to coincide with desirable volleyball skills. The following is a suggested progression for teaching these skills and a suggested modification of volleyball to meet the abilities and interest of fourth graders.

The emphasis is on learning and using the overhead volley and the underhand serve. A modified game is introduced late in the unit after the students have become competent in handling the ball. As the position of "arms up" and constant hitting will produce fatigue if continued for the entire period, other skills or games may be taught within the initial lessons. The number of balls and wall space available may necessitate the introduction of different activities for small groups. Other ball-handling skills, movement skills, or games may be combined with the volleyball skill work.

Elements of the Overhead Volley To Be Stressed

Hands are to be held at eye height with elbows out, backs of hands to face, fingers spread, thumbs nearly touching. Children may be told to look through the triangle formed by thumbs and first fingers. As ball is to be hit, child bends his knees, then hits ball with thumbs and fingers, and jumps and reaches toward ceiling. Constant cue words should be "hit high" or "arms high." Targets should be high so this type of hit is encouraged. Listen for sound of fingers hitting ball, not hands.

Elements of the Serve To Be Stressed

Serving hand forms a fist. Ball is most easily hit with heel of hand. The other hand holds ball in front of serving arm. A pendulum motion should be encouraged as ball is hit off hand. Child steps forward as ball is hit. Eyes stay on ball. If initial distance ball is to be hit is short, child can concentrate on skill pattern and not on where ball goes. Once pattern is understood, force and accuracy can be added readily.

No mention is made of underhand volley.

Equipment Needed

Balls. Seven-inch playground or utility balls; eight-inch balls which are slightly heavier than balloons (available in most variety stores), 8½-inch utility balls, official volleyballs. It is preferable to provide one ball for each child. Any and all of these balls may be used at the same time by different children, as the size of hands and strength vary a great deal. By the end of the unit all will be able to handle the regulation volleyball.

Nets. Regulation volleyball or badminton nets; a rope with strips of cloth dangling from it may be substituted. Nets are mounted at five feet.

Line markings. Wall is used in the first few lessons for both the volley and the serve. Lines should be marked on the wall at intervals of one foot, starting four feet from the floor and ending at twelve feet. Mark lines on the floor parallel to the wall at intervals of two feet up to a distance of 15 feet. A five-foot-wide space is desirable for each station.

Court Space for a Modified Game

Badminton courts provide a basic court for this game. Otherwise two courts may be marked off within a volleyball court. Figure 1 contains suggested markings.

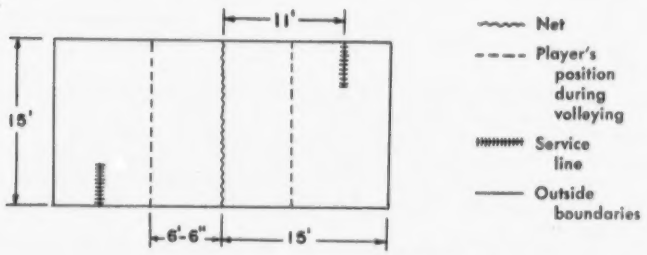

Figure 1. Modified Court for Volleyball

Organization and Method

If facilities and equipment are ideal, each child may have wall space and a ball. The method should be one of problem solving with guided experimentation. Many demonstrations are vital so that the children get a good concept of what the skill pattern is and what the flight of the ball should approximate. Much opportunity for practice should be allowed with the teacher free to make suggestions, answer questions, and give challenges. Many self-testing situations should be planned with children progressing to different levels and distances at their own rate of growth. Short contests can be staged between those of approximate skill levels with three or four top winners recognized. If a ball or wall space is not available for each child, another activity should be planned and groups move to activity stations rather than sit and wait for a turn with the ball.

Lesson 1

Scattered formation. Demonstration and explanation of the toss-up to self. Two-hand toss with ball reaching a height of about four feet above head. Children experiment and practice the toss for control and proper height. Use smallest and lightest balls.

Move to wall stations. Demonstration and explanation of overhead volley against wall. Toss up, hit to wall, and *catch*. Toss up, hit to wall, and *catch*. Always start with toss-up so that the volley can be initiated from a position at least eye high. Taking the volley as the ball rebounds off the wall creates a poor position for the hit and a rushed hit for beginners. Emphasize hands reach high and jump. Start three feet from wall and aim to hit five-foot line. Those who learn quickly can be challenged to hit the wall higher and/or move back to another line.

Lessons 2, 3

Repeat practice of volley. Point out to group major errors or omissions as noticed in previous lessons. Suggested self-testing activities:

1. Set number of times ball must successfully be hit above certain lines from varying distances.
2. Child moves to next line when he completes challenge.
3. Have short contest for those who can complete most hits at certain distances and heights within a set number of seconds.
4. Have separate contests for boys and girls or certain progress groups.
5. A variety of novelty targets for walls may be employed. Continue to have the toss-up to self.

Lesson 4

1. Demonstration and explanation of serve. Start five feet from wall, target four feet high. Serve and catch, serve and catch. Practice with individual help.
2. Volley to partner across six-foot distance, no net. Use toss-up and hit, catch. Increase distance for each couple as they demonstrate the need. (As children become more proficient and hit farther and higher, each will need more space. For the next three lessons the class may be divided into two groups, one practicing what is described in 1 and the other as in 2.)

Lesson 5

1. Practice service against the wall. Set number of successful serves at one distance and height, then move back to next.

2. Volley to partner at one's own distance without using toss up, hit, and catch (the latter for those who are ready).

Lesson 6

1. Serve to partner from distance of eight feet. Move progressively back to a distance of 20 feet.
2. Volley with partner across five-foot net. For those who are not successful, return to toss-up.

Lesson 7

Teams of two on each side of the net, volley back and forth. How long can ball continue to go back and forth? Quick contests.

Lesson 8

Teams of four in one line at net. Volley back and forth across net. Contests of which group can keep it going the longest. Winners put ball into play with a service.

Lesson 9. Introduction of Game

Formation: Four on a team, all in one line. Suggest standing on a dotted line 6′ 6″ from net or on short service line of badminton court.

Rules. Serve from right-hand corner. Rotate to the left when team wins serve. End person goes to head of line and becomes server. Allow only one hit per person. Allow any number of hits on a side before ball goes over net. (Most will hit it over on one.)

Ball must land within boundary lines. (Touching net or center line rule may be added after first day or two if it is necessary.) Serve must go over on first try. Service line may be adjusted to needs of team or of individuals.

Scoring. Point is scored by serving team if ball is not returned over net or it goes out of bounds on return. A team either wins a point or the serve.

Server always announces score before serving, stating the score of his team first.

Lesson 10

Play the game rotating teams after a certain number of minutes.

Lesson 11

Volley practice or serve practice, if needed. Then play the game. Introduce strategy of hitting ball where players are not in position.

Lesson 12. Round Robin Tournament

These are suggested divisions of time. Each class will vary in the speed with which it is ready for succeeding steps. It is important that all students be given an adequate time to gain some proficiency in volleying the ball before they are put into the competitive game situation.

The emphasis is on learning the skills. There should be many opportunities for competition in the practice situations, but care must be taken that they are for comparable ability groups. Teams may be divided heterogeneously or homogeneously by ability or by size, depending on the teacher's philosophy.

Children at this age are eager to learn new skills and new games. The confidence gained from proceeding at one's own rate of growth and the enjoyment of playing a volleyball game modified to fit the varying sizes and strength of the players should produce both a desire to be skillful and a lasting interest in volleyball.

Growing Up with Volleyball

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A recent meeting of high school, junior high, and elementary school physical education teachers in our city proved to be extremely interesting and enlightening to all participants. The purpose of the meeting was to find ways of better articulation among the three levels in physical education. Teachers on each level were operating within their own sphere of influence and were not aware of the children's previous experiences in physical education or of the experiences to follow.

In advising elementary school teachers on how they could better prepare students for advanced physical education work, the secondary school teachers agreed that elementary schools could develop programs where stress was placed on proficiency in many skills, rather than concentrate on the specific skills of any one team game. In other words, the students entering the secondary school physical education program would have had the opportunity to develop proficiency of body movement and sound knowledge of basic skills to a point which might be called readiness for the specific skills of team games and sports.

Basic Skills Training

As a result of this three-level meeting, much thought was given to just how stress might be placed on basic skills. It was recognized that the elementary child is at the age where he is flexible, generally loves to climb and run, and is anxious to try new ideas. He is enthusiastic, and his boundless energy never seems satisfied.

In evaluating our program in regard to basic skills, we found that it did not provide sufficient experience in ball-handling.

In the plan of operation, we considered the necessity of providing the maximum amount of activity for each child. As a result, the planning was based on this premise and activities were set up for each child.

In deciding to stress ball-handling in our physical education program, we realized that many games depended on the ability of the player to throw, kick, or strike the ball. Volleyball was chosen as the game requiring skills in ball-handling much harder to acquire than that of bouncing or throwing a ball.

When a small child is given a ball, his first reaction will be to throw it. It was found that many children in a class of six-year-olds could bounce a ball and catch it at the first attempt, but very few could throw it up in the air and catch it before it bounced. The tendency, especially among little girls, was to throw the ball up and let it bounce before any attempt to catch it was made.

In our experiment, each child was given a ball of some kind—soccer, volleyball, basketball, softball, sport ball, or small rubber ball. In providing one ball for each child, the natural instinct of "this is mine" was satisfied. Basically, there is a great need for early elementary children to work with a ball as much as possible. They tend to be afraid of a moving ball, instinctively dodging or cringing when a ball comes in their direction.

When our six- and seven-year-olds were first given balls to work with, and in anticipation of the chaos that could result from 35 balls flying in all directions around a gymnasium, we explained and demonstrated how to stop a ball and how to hold it quietly while listening to directions. When children are taught correct procedures and understand the reasons for the do's and don'ts, they are able to operate more efficiently and satisfactorily and enjoy the experience.

In handing a ball to a small child and telling him not to touch it but keep it beside him on the floor, we are immediately creating an anti-impulse situation. He must be allowed to exercise this impulse, but within the set limits. It helps children a great deal with their own control if definite limits are set.

The Experimental Work Plan

Six- and seven-year-olds

1. Children were given balls and allowed to explore all ways of throwing, catching, and rolling them individually. (Because of the variety of sizes in balls, the children exchanged once during each week period.) The only limit set on this activity was stopping at a signal and holding the ball quietly while directions were given. The task here was to help the child to grow in ability to control himself and the ball at a given signal and to allow each child to become accustomed to the various sizes and shapes of the balls used in the gymnasium. The second limit that was set was the amount of space each child could use. He could use the ball in any way as long as he remained within a given area and could stop at a signal.

2. Each child was asked to find out how many different things he could do with the ball he was using. It was in this step that so many interesting things developed. One child bounced the ball while

he was walking (basketball dribble), and another child discovered he could bounce the ball upside down—by throwing it up and catching it. This is the beginning of the concept that the ball does not always have to bounce on the floor. Simple problems were posed to the children in the following fashion:

- Can you roll the ball and run ahead of and stop it?
- Can you roll the ball and keep it close to you?
- Can you bat the ball into the air and keep batting it back into the air?
- Can you throw the ball into the air and run and catch it before it touches the ground?

3. The problems were set for two people in a similar fashion to those for the individual.

- Can you throw the ball to your partner, and can you catch the ball and not drop it?
- How many times can you throw the ball and catch the ball?

Most six-year-olds can count well enough to match their skill in throwing at the beginning. This is also an experience in using numbers.

4. Several large, light-weight beach balls were introduced for the game of *keep it up*, and the problem was to see how long a child could keep the ball in the air by hitting the ball without catching it first. This was done individually—a few children used the beach ball while the other children worked with the regular balls. (Balloons can be used and are not as hard to retrieve, but are slightly impractical.)

Eight- and nine-year-olds

1. At this age level, the same skills used in the first grade were reviewed with stress on a greater degree of accuracy.

2. A simple game of *keep it up* was introduced. The class was divided into two groups facing each other. A large beach ball was tossed to the sides alternately after a point was scored. The object of the game was to keep it up in the air by tapping it and moving the ball over to the other team. This play continued until one side or the other let it fall to the floor. A row of "retrievers" was stationed outside the playing area, with the special obligation of returning an out-of-bounds ball and placing it back in play. This was done by tossing the ball in the air and tapping it back into the game. This was the first attempt at the volleyball pass. A rotation system was used to allow children to play on the outer edges as well as in the center where the action was concentrated.

Nine- and ten-year-olds

At this age level, the technique of serving a ball was introduced along with the experience of working in a small group of six or eight children. Each group had a leader who acted more as a captain and spokesman for the group than a person who was expected to improve the performance of his group. Division into groups was casually done. Each time groups were needed, the children quickly divided into groups of six or eight quite easily and efficiently. Leadership was passed around, but no child was ever forced to be a leader if he did not want to be, just because he had not had a turn.

With the ability to work in small groups, definite volleyball techniques were introduced. Serving was started in this way.

A net or rope was stretched across the gymnasium—or between two jumping standards if it was an out-of-doors situation—at a height of three feet. This height was gradually increased to five feet by the end of the unit of work on game skills. The groups worked in pairs, one on each side of the net. On one side of the net were placed several serving lines at varying distances from the net. Each child could serve the ball either by throwing it or striking it with a closed hand as in the regular service of volleyball. He also had the choice of the distance from the net he wished to use. Control and placement of the serve was stressed in getting the ball over the net and to the player on the opposite side, who returned the ball by rolling it under the net to the next server. Squads rotated to the serving side. Service lines could be placed on both sides at the net, and in this way each squad practiced the serve. It was felt some of the rules of etiquette of the game could be established at this time.

Ten- and eleven-year-olds

The usual procedure with children of this age group is to decide to introduce volleyball and the skills at the same time, with the hope that a sufficient degree of skill will be developed to provide satisfaction to the children.

It was found that children who had been in the skill program from the first grade were definitely superior in ball-handling skills at this age level. Many children from other communities or from out of town were awkward and lacked experience in this area. In situations where it was found that there was a great spread between the least skilled and the most highly skilled pupils, the simple skills of ball handling were reviewed. In this situation, the highly skilled children coached and worked with those children having a lesser degree of skill. Because of the maturity of the sixth-grade child, the development of proficiency was rapid and the gap lessened.

A method of self-evaluation was used on this ten- and eleven-year-old level. After the review of general ball-handling techniques and the practice of specific volleyball skills, the class was ready for a game situation. The question became, "How can the utmost satisfaction be given to every child regardless of his physical ability?" Previous to this, many experiences had been provided for the children in which individual differences were recognized and respected. It became the accepted thing to see children who were quick to solve the problems step over to other members of the class who needed help and work with them, whether the problem was in dance, movement exploration, or game skills.

Each child was asked to evaluate himself and his ability to handle a volleyball. The criteria of evaluation were worked out by the group sitting around the blackboard. The points were listed on the board:

Group I: Highly skilled. Children who hit the ball well and very seldom missed hitting the ball.

Group II: Moderately skilled. The children called this the *half-and-half*—children who missed just about as many as they played.

Group III: Least skilled. Children who very seldom hit the ball and usually missed at any attempt to keep the ball in play. This also included children who made little attempt to get into the thick of play.

After the discussion, the children walked to the three designated areas and we had three games of the extremely well matched players. If you don't believe it is difficult when you are 11 to decide you belong in Group III—when your best friend is definitely in Group I—you don't know 11-year-old boys and girls! However, these youngsters had no embarrassment about their skill; they accepted what each could do with respect. Group III requested a large beach ball because they thought it would help them improve their skill. Group I played an exciting, fast-moving game, and gradually added such things as one-hit, three passes, and spiking.

Another procedure that proved interesting was the daily individual evaluation. Any child could demote himself to a lower group or move up when he felt it was helping him. The children made their own decisions and the amazing thing about this was that each individual change made was invariably correct.

We felt this was an extremely worthwhile project, and we have followed this pattern sufficiently to evaluate the work with many children. It definitely made our games more interesting and gave the individuals a better knowledge of skills and how to use them.

skills and drills

Perfecting the Pass

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Highly skilled players in any sport will attest to the fact that continual and concentrated practice is necessary to develop and maintain a high level of skill. Yet is it only "practice" that makes "perfect?" Mere repetition of a skill does not ensure that it will be mastered with greatest efficiency. Skill perfection may not result unless the performer is assisted in diagnosing and correcting the movement errors which can limit the achievement of a desired level of skill and consistency.

The volleyball chest pass is a skill that is basic to good team play at all levels of ability. Using the pass effectively, team players can maneuver the ball into position for the most advantageous attack, rather than randomly bat the ball across the net from any position. The development of this fundamental skill should therefore receive primary emphasis in instructional programs for beginners.

Traditionally, methods recommended for teaching the pass have incorporated the use of a variety of drill formations in which the students practice passing the ball back and forth to each other. If students are required to practice these drills merely for a certain period of time or with the goal of winning a relay race for continuous passing or speed of passing, it is very possible that several different movement patterns and ball arcs would be deemed acceptable as long as the drill was completed or the relay won. In such cases, the practice of poor or inconsistent performance may be worse than no practice at all. It is essential that the teacher select drills which have *specific* goals based on what is known about good performance of the pass. Practice in these drill situations would then demand that good movement be used if the goal is to be achieved.

To select or develop drills that will encourage good performance and to use them effectively in teaching the pass, a teacher should be well informed on the following points:

1. The characteristics of good performance in the pass
   a. The desirable result (height and distance) of a good pass

b. The movement (joint actions) employed to achieve the desired performance result

2. The methods (and their underlying learning principles) by which good performance in the pass may effectively be developed.

Good Performance in the Pass—Height and Distance

Volleyball authorities generally agree that the pass should be high and in a forward direction, permitting the receiver enough time to get under the ball so that it can be easily handled. There is some disagreement, however, on the exact height to which the ball should rise in its arc. Suggested heights range from eight feet to 15 feet above the floor. The desired horizontal distance of the pass is infrequently defined precisely, but is stated instead as the distance required to reach the receiver.

In an attempt to define more specifically the attributes of a good pass for college women, the University of Wisconsin women's volleyball staff has reviewed the literature on volleyball, considered the purpose and use of the pass in the game, and specified a desirable arc of the ball by setting the height and distance to which it should be passed. A minimum height of 15 feet, suggested by Laveaga,[1] was selected to avoid a flat pass, which even highly skilled players have difficulty in handling. For the six player game on a 30x30-foot half-court, a 20-foot horizontal passer-receiver distance was chosen since it approximates the distance of the back to forward pass. Other desirable arcs can also be specified for different age groups. Stauff [2] has defined and used, for seventh- and eighth-grade girls, an arc in which the vertical height is 13 feet and the passer-receiver horizontal distance is 12 feet.

Once the height and distance goals of the pass have been defined, a situation can be devised in which an individual's performance is evaluated to determine whether or not the desired arc is achieved. A test for the volleyball pass has been developed by Liba and Stauff [3] to evaluate the performer's ability to pass the ball in either of the two arcs defined above. In the testing situation for the 20-foot pass (Figure 1), the objective is to project the ball over a rope suspended 13 feet above the floor and into Area 8 on the floor target. Since the ball is allowed to drop to the floor rather than be contacted by a receiver 20 feet away, the desired horizontal distance of the pass becomes 23.5 feet. Arc A in Figure 1 describes the

[1] Laveaga, Robert E. *Volleyball*. New York: Ronald Press, 1960.

[2] Stauff, Marilyn. "Developing Skill in the Volleyball Pass Through Conditioning." *DGWS Volleyball Guide*, 1963-1965, pp. 29-32.

[3] Liba, Marie R., and Stauff, Marilyn R. "A Test for the Volleyball Pass." *Research Quarterly* 34: 56-63; March 1963.

height and distance goals stated as the elements of good performance in the pass.

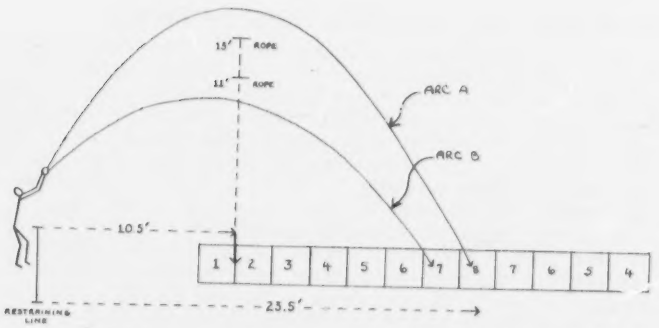

Figure 1. Volleyball pass test for college women

Movement Analysis

To achieve the desired height and distance goals which will result in a high arched pass, the performer must use her body effectively in applying to the volleyball a certain amount of force in a certain direction. Since the arc or trajectory of a good pass has been defined precisely, its force and direction components can be calculated. This pass has the following trajectory components:

Initial velocity—27.20 feet per second
Angle of projection—60 degrees above the horizontal.

An angle of projection greater than 60 degrees is also acceptable, but if the ball is to travel the desired horizontal distance, the initial velocity must then be increased. The specific joint actions employed by the performer and the sequence and speed with which they occur will largely determine the initial velocity and angle at which the ball is projected.

The volleyball pass is performed much too rapidly for an analysis of joint actions to be made by the naked eye. Therefore, to facilitate this analysis, slow motion films were taken of two subjects as they executed the pass. Subject A, who was judged to be a good performer, projected the ball in an arc very similar to Arc A in Figure 1. Subject B, whose pass is described by Arc B, was con-

sidered to be a poor performer. The information obtained from the films of these two subjects is presented in Table 1 (see p. 86).

For both subjects the major joint actions contributing force and direction to the ball at contact were shoulder flexion, elbow extension, and wrist flexion.* While the sequence in which these joints began their force-producing actions was the same in both cases, the angular range and speed at each of the three joints were considerably greater for Subject A. Four frames have been traced from each film to illustrate the subjects' positions prior to, during, and following contact with the ball (Figure 2).

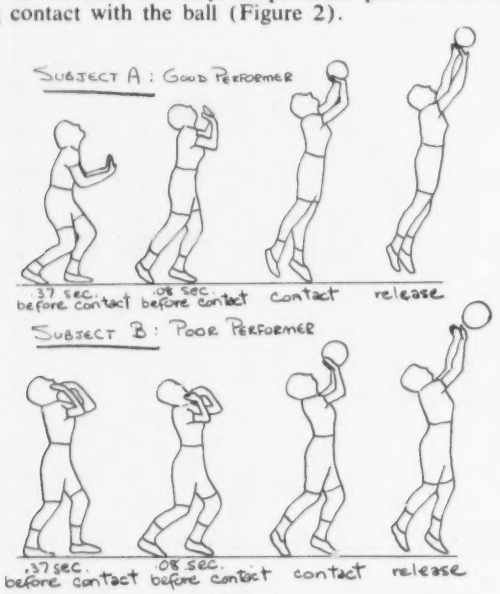

Figure 2

The most noticeable difference in the joint actions employed by the two subjects appears to be present at the shoulder joint. From a starting position with the upper arm vertical and the shoulder joint in extension, Subject A flexed this joint through a range four times

* *Note:* Wrist flexion is the action which brings the palm of the hand closer to the forearm. In the volleyball pass, flexion brings the hand from a hyperextended position to one of full extension.

Table 1
INFORMATION OBTAINED FROM FILM ANALYSIS OF THE VOLLEYBALL PASS

	SUBJECT A—GOOD PERFORMER			SUBJECT B—POOR PERFORMER		
INITIAL VELOCITY	29.5 ft./sec.			23.8 ft./sec.		
ANGLE OF PROJECTION	64°			46°		
BALL HEIGHT ABOVE FLOOR	15.9 ft.			9.8 ft.		
RANGE TO FLOOR	23.3 ft.			21.6 ft.		
JOINT ACTIONS	SHOULDER FLEXION	ELBOW EXTENSION	WRIST FLEXION	SHOULDER FLEXION	ELBOW EXTENSION	WRIST FLEXION
SEQUENCE	1st	2nd	3rd	1st	2nd	3rd
LENGTH OF TIME ACTING PRIOR TO BALL CONTACT	.41 sec.	.08 sec.	.05 sec.	.14 sec.	.06 sec.	at contact
ANGULAR RANGE PRIOR TO BALL CONTACT	119°	46°	6°	29°	39°	—
ANGULAR SPEED AT CONTACT	681°/sec.	722°/sec.	120°/sec.	266°/sec.	548°/sec.	—
ANGULAR RANGE WHILE FINGERS WERE IN CONTACT WITH BALL	11°	30°	32°	15°	26°	31°
ANGULAR SPEED WHILE FINGERS WERE IN CONTACT WITH BALL	333°/sec.	909°/sec.	970°/sec.	326°/sec.	565°/sec.	674°/sec.
LENGTH OF TIME FINGERS REMAINED IN CONTACT WITH BALL	.033 sec.			.046 sec.		

greater, up until ball contact, than did Subject B whose starting position showed the upper arm approximately horizontal. As a result of flexing the shoulder joint through this larger range with greater speed, Subject A developed an angular velocity that was two and one-half times greater than the angular velocity of Subject B's shoulder flexion. It should be noted that, although the action at the shoulder joint was primarily flexion, some abduction at this joint also occurred for both subjects as the elbows remained approximately four to six inches outside the shoulders throughout the skill performance.

Wrist action (flexion), which moved the hands in the intended direction of the pass, began in Subject A just prior to ball contact. Subject B's wrists were still hyperextending as the ball contacted her hands. Since Subject A had hyperextended the wrist joint further than Subject B, she therefore had the potential for a greater range of wrist flexion and thus for the development of greater angular velocity at the wrists.

In addition to developing greater angular speed at the shoulder, elbow, and wrist joints prior to ball contact, Subject A also extended more rapidly through a greater angular range at the hip, knee, and ankle joints than did Subject B. It is likely that some of this greater forward and upward body momentum developed by Subject A was transferred through her arms and contributed to the larger initial velocity she was able to impart to the ball.

From the point at which the fingers first contacted the ball until the ball was released, the time elapsed for Subject A was .033 seconds, and for Subject B, .046 seconds. During this time, Subject A developed a considerably greater angular velocity at the elbow and wrist joints than did Subject B. For both subjects, however, wrist flexion was occurring somewhat faster than elbow extension, and much faster than shoulder flexion.

The action of wrist flexion cannot be dissociated with that of finger extension. Although enlargements of the films did not show the position or action of the fingers in sufficient detail to be measured, it was observed that rapid finger extension occurred in both subjects as the wrists flexed. While neither of these actions can be said to cause the other, it is possible that the performer's attention was on the finger extension, and wrist flexion merely accompanied this intended action. It can be demonstrated, by placing the wrist in a hyperextended position with the fingers slightly flexed, that rapid finger extension will also move the hand into line with the forearm.

Skilled volleyball players and coaches frequently stress the importance of extending the fingers rapidly and stiffening the wrists

as the ball is contacted. It is likely that the wrist flexion which was measured in the films of Subject A and B was merely that action which accompanied the rapid extension of the fingers as the subjects attempted to stiffen the wrists and minimize the time during which the fingers remained in contact with the ball. Since Subject A's fingers remained in contact with the ball for a shorter length of time, and since her wrist flexion occurred with greater speed during this .033 second, it can be hypothesized that she extended her fingers with greater speed and effectiveness than did Subject B.

In summary, Subject A's success (compared with that of Subject B) in achieving the desirable height and distance goals for the volleyball pass can tentatively be attributed to—

1. The larger angular range and speed at the shoulder, elbow, and wrist joints prior to ball contact
2. The shorter period of time spent with fingers in contact with the ball, and the greater angular velocity developed during this time period at the elbow and wrist joints
3. The larger angular range and speed of hip, knee, and ankle extension which contributed to the greater upward and forward motion of the body.

Developing Good Performance in the Pass

Equipped with the knowledge of the characteristics of a good pass—its desired height and distance goals and the joint actions employed to achieve these goals—a teacher can now plan the learning situations for her students. In selecting the drills to be practiced, she should be guided by the most recent concepts and principles of learning. According to these concepts, learning occurs most efficiently when the material or skill is presented in a series of logically ordered steps leading sequentially to the desired final behavior. As the student actively responds at each step in the learning sequence, she should immediately be able to obtain information which would indicate that the performance was successful or that an error was made. When each student is helped to identify and correct her errors in performance before moving on to the next step in the learning sequence, instruction is then truly individualized.

The importance of carefully selecting and sequentially ordering drills for the pass cannot be emphasized strongly enough. Since the time available for basic skill instruction and practice is often at a premium, it is essential that this time be spent purposely and productively. Practice in each of the drills selected should provide information for both the performer and the teacher concerning the degree of success achieved in each trial. This information then

serves as a basis for suggestions made by the teacher to help the student improve specific aspects of her performance, such as developing greater force or controlling the vertical direction of the ball.

A series of drills is suggested here in a sequence which could be used to develop skill in the pass.

1. Sitting on the floor, hit the ball to the height of a rope stretched nine or ten feet above the floor. Attempt several continuous hits to this height. (By excluding the joint actions of hip, knee, and ankle extension, emphasis is placed on the development of forceful shoulder flexion, elbow extension, and wrist flexion.)
2. Sitting on the floor, pass the ball over the ten-foot rope to a sitting partner who attempts to return the pass.
3. Standing, perform repeated vertical set-ups to a height of 13 feet or better. Check ball height in relation to a rope stretched 13 feet above the floor.
4. Standing, pass a self-tossed ball over a rope stretched 13 feet above the floor and toward a floor target 23½ feet away. To develop greater strength in the muscle groups used in performing the pass, practice in this situation using a soccer ball or a basketball. (The testing situation developed by Liba and Stauff described earlier in this article is used in this case as a drill or practice situation.)
5. Standing, pass a self-tossed ball over the 13-foot rope to a partner standing 20 feet away. Both players stand ten feet from the rope.
6. Standing, pass a ball tossed by a partner. Use the 13-foot rope and a receiver 20 feet away to define the ball's arc.
7. Standing, pass back and forth over the 13-foot rope to a partner standing 20 feet away. Do this for at least six passes.
8. Take the ropes away and practice on the volleyball court passing the ball to a partner in the front row. Recall the kinesthetic memory of the amount and direction of force needed to pass the ball in the desired arc.

The values that may be obtained by practicing the pass in any one of these or other drills will depend largely upon 1) the demands of the drill situation (Are the goals of the drill challenging enough to elicit good performance and skill improvement?), and 2) the use made of the information obtained during practice concerning strengths and weaknesses of each subject's performance. Developing and perfecting a skill such as the volleyball pass therefore requires more than mere repetition of the skill without specific goals toward which to strive. Instead, practice must be combined with constant evaluation of the resulting performance in relation to the desired goals.

Developing Skill in the Overarm Serve

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Certain skills are basic to the game of volleyball and as such are present in the repertoire of skills of players ranging from novice to seasoned Olympic player. One of these skills is the serve. Acquiring an effective serve is fundamental to developing a skillful game of volleyball; for example, the only time a team may score points is when that team is serving; thus the difference between winning and losing a game may well lie in the ability of the team members to serve effectively.

Types of Serves

There are three basic types of serves: the underarm serve, the sidearm serve, and the overarm serve.

The Underarm Serve. In this serve, the problem of contacting a moving object in space is avoided; thus it is more easily executed. In addition, the underarm pattern is usually more well developed or can more easily be developed in the student. Consequently, this serve is most commonly taught to beginners, for it presents a less complex task.

The Sidearm Serve. This serve is slightly more difficult than the underarm serve because the server is now faced with the problem of contacting the ball while it is moving. The sidearm serve per se is generally not taught as a specific or separate skill. A beginning player may, however, fall into using a sidearm pattern in order to gain more force while still maintaining a semblance of the underarm pattern previously learned.

The Overarm Serve. The overarm serve is the most difficult of the three serves. Here the instructor approaching the teaching of the skill faces two major problems: a) The difficulty of contacting a moving object in space, and b) the inability of many girls to execute an effective overarm pattern. Therefore, the overarm serve is usually considered an advanced skill and is generally completely absent from the beginner's game. In competitive volleyball, however, where players with a higher degree of skill are involved, the overarm serve is the one most commonly used. (*Note:* The ab-

sence of this skill in the beginner's repertoire is probably in large part due not to the inability of the individual to learn such a skill but rather to the greater need for, and thus greater emphasis upon, the practice and perfection of the simpler yet essential skills such as the pass and the set-up.)

The Nature of the Serve

All of the foregoing serves must be projected at an upward angle in order for the ball to pass over the net cleanly, making the serve basically a defensive play. Since offensive maneuvers lend themselves better to the winning of points (and of games), it is desirable to make the serve as "offensive" as possible. The good or offensive serve should be one which passes over the net with a great deal of speed and which has as flat a trajectory as possible. Strategically this serve will minimize the time in which the opponents may position themselves to play the ball. In addition, a serve traveling at a fast rate of speed will, in general, be more difficult to play effectively than one traveling at a slower rate.

There are inherent differences in the speed which can be developed by the different methods of serving, a result primarily of the differences in joint actions involved in the respective patterns. Further, differences in the relationships between the contact points of the various serves and the height of the net produce major differences in the trajectories of the three serves. Thus, of the three basic serves, the overarm serve best fulfills the foregoing requirements of a fast speed and a flat trajectory. Figures 1, 2, and 3 show the trajectory of each of the three types of serves.

It is the purpose of this article therefore to discuss the following aspects of the overarm serve: a) product aspects of the skill or the flight of the volleyball after contact; b) process aspects of the skill or how this trajectory is achieved; and c) methods for achieving the desired product or skilled performance. The addition of volleyball to the Olympic games and the extensive use of the overarm serve by these advanced players makes the topic of developing skill in the overarm serve even more pertinent.

The Product Aspect of the Overarm Serve

As stated previously, the most offensive and therefore most effective serve is one which passes close to the net and goes deep into the opponent's court. In addition, the server should attempt to place the ball in the corners, making it even more difficult for the receiver to make an effective play. A good serve, in terms of force, should travel with a minimum velocity of approximately 40 feet per

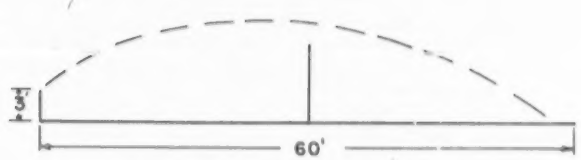

Figure 1. Trajectory of the underarm serve

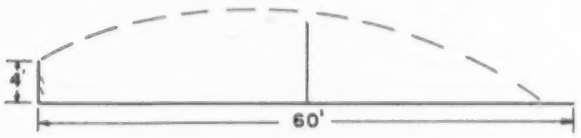

Figure 2. Trajectory of the sidearm serve

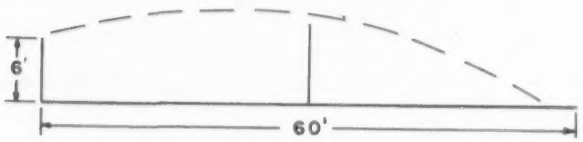

Figure 3. Trajectory of the overarm serve

second; that is, it should reach the net in .75 second. Such a serve would be projected at a vertical angle of about 23 degrees. This vertical angle of projection assures that the ball will land deep in the opponent's court. The trajectory of this serve is shown in Figure 4 below. In contrast, a serve which travels at a slower rate of speed would have a different line of flight. If the vertical angle of projection is maintained at 23 degrees, the ball would go into the net (Figure 5). In order that the ball clear the net, it must be projected at a vertical angle greater than 23 degrees to compensate for the slower speed. This would result in the ball's falling short of the back court area (Figure 6). The ball may, however, be projected at a velocity greater than 40 feet per second and still possess the characteristics of a good serve. In this instance, the vertical angle of projection must be reduced (i.e., smaller than 23 degrees) as the velocity is increased, in order that the ball may land within the court (Figures 7 and 8).

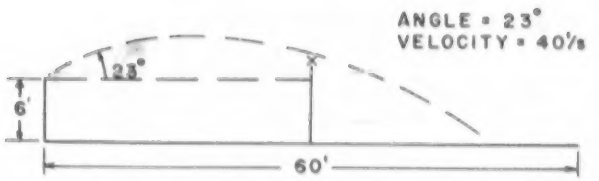

Figure 4

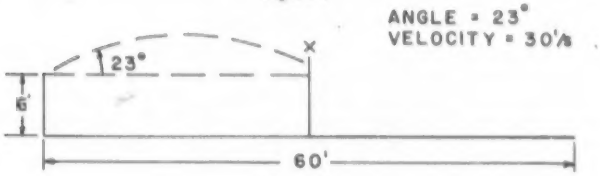

Figure 5

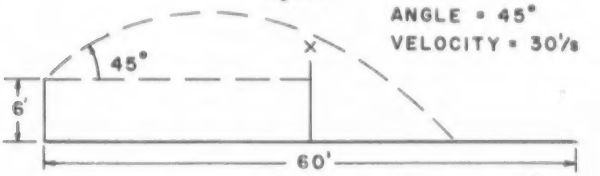

Figure 6

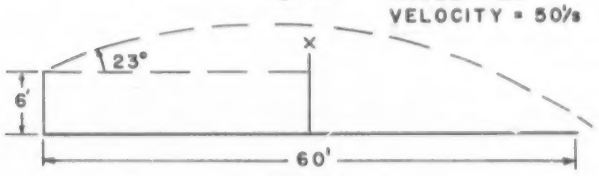

Figure 7

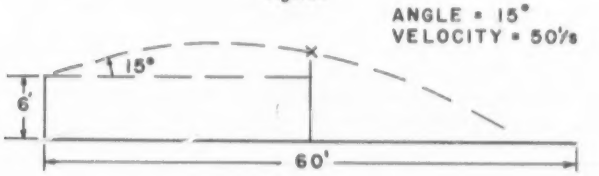

Figure 8

The Process Aspect of the Overarm Serve

To obtain the desired objectives in terms of the product aspect of the serve, the proper force pattern must be developed. The pattern used in the overarm serve is basically the same as the overarm softball throw, although it is less whiplike (perhaps more like the catcher's throw).

The desired force is achieved primarily through the effective use of the joint actions basic to the overarm pattern. This force will be developed if these joint actions occur in the proper sequence and timing and move through a maximum range.

Sequence of Joint Actions. The joint actions involved in the overarm throw pattern in the sequence in which they should occur are as follows: pelvic rotation, spinal rotation, medial rotation at the shoulder, and wrist flexion. Action is initiated by the larger body masses (i.e., in the pelvic and spinal regions). Maximum force is then produced when the arm actions are incorporated into the sequence (i.e., the smaller body segments). These segments can move more rapidly than the larger body masses and thus add maximally to the desired force. In order to produce maximum force, all of these joint actions must be occurring at the point of contact and must be moving at their maximum speed. Thus, one joint action does not cease when the next begins. For example, the pelvic rotation does not stop at the onset of spinal rotation nor the spinal rotation at the onset of shoulder medial rotation. Rather, a kind of chain reaction is involved, with each action triggering the next, but continuing itself until the time of contact. Further, the arm actions must not begin simultaneously with the trunk actions or these segments will not be moving at their maximum speed at contact.

Range of Joint Actions. The range of joint actions is also of considerable importance in producing the necessary desired force. This is clearly illustrated by the following relationship. In general, the greater range through which the joint is moved, the greater the resulting velocity of the joint action, the greater the speed of the moving segment at contact, and thus the greater the force imparted to the projected object.

To allow for maximum range of joint actions, the server's starting position is important. To assure that pelvic and spinal rotation may occur through an adequate range, the server should stand with her nonserving side toward the net, weight on the back foot. So that optimum conditions are provided for medial rotation and wrist flexion to occur as the ball is gently tossed up by the nonhitting hand, the hitting arm should be drawn back into a position similar

to that used in the overarm throw. (Some lateral rotation at the shoulder will occur and the wrist will drop into hyperextension.) This position is one which will allow shoulder medial rotation and wrist flexion to act through a maximum range. In addition, a step forward or transfer of weight is essential for a maximum range of joint action. This transfer of weight begins with the onset of pelvic rotation and ends at ball contact.

Description of the Process. As the ball descends to the proper contact height, the transfer of weight forward is initiated, the pelvis begins to rotate forward, and spinal rotation begins shortly thereafter. Shoulder medial rotation and wrist flexion are then added to the sequence. Pelvic and spinal rotation in themselves will move the arm forward in space. However, optimum force will be achieved only by the addition of shoulder medial rotation and wrist flexion. These latter two joint actions are also essential for projecting the ball at a desired vertical angle.

Methods of Achieving the Desired Product

The desired product has been described primarily in terms of force and trajectory. Once the student has developed the proper force pattern, the problem of accuracy or horizontal placement on the court may be considered.

Preliminary Practice with a Softball. Since the arm pattern used in the overarm serve is similar to the overarm softball throw, the throw may be used as a basic step in developing force in the overarm serve. At this stage the instructor can determine whether or not a student will be able to execute a good overarm serve. If a student does not possess an adequate throw, it is unlikely that she will be able to serve well using the overarm pattern. Such a student will have to concentrate her efforts on developing a good throwing pattern or be limited to the use of the underarm or sidearm serve.

Assuming that the student is able to execute an overarm throw, the first step in developing the force pattern would be to practice the softball overarm throw. This can easily be done by having the student throw against a wall from a 30-foot distance (distance from serving line to net). The emphasis at this point should be on throwing the ball with as much force as possible. A throwing velocity of 50 feet per second should be achieved before a student moves to the next stage of development. The velocity of the throw may be determined by using a stopwatch to measure the time of flight from the thrower's release until the ball hits the wall. A ball thrown with a velocity of 50 feet per second would be in the air .6 second for the 30-foot distance.

Practice with the Volleyball. As soon as the student is able to throw a softball with the desired force, the problem of contacting the volleyball should be introduced. Since the overarm serve involves contacting a ball which has been tossed into the air, the effectiveness of the serve is somewhat dependent upon the ball toss. Therefore, some time should be spent in practicing the ball toss alone. When some consistency in a good toss has been developed, the student is ready to practice contacting the ball.

The first step would be to have the student stand 30 feet from the wall and serve the ball at the wall with as much force as possible. Primary attention here should be given to reproducing the forceful throwing movement. The student should attempt to achieve a velocity of at least 40 feet per second. The time of flight of this ball would then be about .75 second. The velocity goal of the serve is slightly less than for the softball throw due partly to the size of the ball and to the problem of contacting the tossed ball.

If a student is unable to serve the ball with the desired velocity, and was able previously to throw the softball with the desired force, some inadequacy in the process aspect of the skill may be the cause. For instance, the joint action sequence may be incorrect; the range of joint action may not be maximal; or all joint actions may not be acting at contact. Any one or all of these items will reduce the force with which the ball is contacted and projected. The problem might also lie in the ball toss or in the point of contact. Such errors may be detected through close observation by the instructor.

After the student has achieved the desired force in serving, the emphasis should be placed on the vertical accuracy or angle of projection. A line may be drawn on the wall 7 feet 4¼ inches above the floor to represent the height of the net. While attempting to maintain a velocity of 40 feet per second, the student should practice serving the ball so that it hits the wall just above the net line. The time of flight of this serve should still be about .75 second. If the time is slower than .75 second, some of the force of the serve has been lost. If the ball hits the wall more than a few inches above the net line and the velocity of 40 feet per second has been maintained, the vertical angle of projection is greater than desired. If either of the foregoing situations arises, the student should continue to practice until the desired force and vertical accuracy are attained.

When the student is able to serve the ball at the wall with the desired force and trajectory, she is ready to practice serving on the court. During such practice the velocity of the serve should be checked periodically. In this situation the student might also be provided with a vertical target at the net. A rope could be strung

across the court a few inches above the net. This would provide a check on the vertical accuracy of the served ball. The objective of the student would then be to serve the ball so that it passes over the net and under the rope while maintaining a velocity of at least 40 feet per second.

Methods of Achieving Horizontal Accuracy. With the force pattern of the overarm serve thus developed, the student can then practice placing the ball in the back corners of the opponent's court. Lines could be drawn on the court to give the server a target area at which to aim.

By use of the foregoing practice situations, the student is provided with a logical progression for the development of the overarm serve.

Methods of Evaluation. Evaluation procedures may be used at any or all stages of development of the overarm serve. Records of velocities may be kept in the earliest steps in the progression as well as when the student has practiced on the court. Scores of the vertical accuracy can be recorded while the student is still serving against the wall. In addition to using the net line, lines may be drawn at one-foot intervals above and below the net line and a score value assigned to each of the resulting areas.

The use of such objective measures during the developmental stages of the serve, as well as when the final goal in overarm serving has been accomplished, provides the student with specific information as to the effectiveness of her performance. This immediate and precise feedback provides the student with the necessary information upon which to base her next performance—a principle which is basic to all efficient learning situations. This information may also be used by the instructor for diagnostic purposes; that is, a lack of achievement in the product aspect of the skill reflects and indicates an inadequacy in the process aspect. Thus, the teacher is provided with an objective means for making helpful suggestions to the student.

Strengthen That Defense

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The 1964 Tokyo Olympics brought about a new emphasis to our game of volleyball—defense. Physical educators, coaches, and players alike have recognized the importance of defense plays in building a strong team whether it be at the high school, college, or international level.

A defensive team is the team that is not in possession or control of the ball. Defense usually consists of a block, which is a play in which two players attempt to intercept a hard-driven ball at the point where it crosses the net, and backcourt play, the object of which is to attempt to recover any ball that gets by the block.

Blocking

Although blocking is not the most exciting skill in volleyball, it is one of the most important ones; it is the base upon which defensive play is built. Mastery of this skill requires cooperation and effort from all players along with a great deal of practice.

The starting position for blocking is approximately two feet from the net. When the players are in their starting positions, their eyes are focused on the ball and the setter. As the setter sets the ball, the block is formed directly in front of the ball with each player taking one-half of the ball. To position themselves correctly, the blockers use a sidestep lateral movement. When forming a block, one of the players must assume the first blocking position which is called setting the block. This initial positioning creates a definite spot to which the second player must move. The general rule for setting the block is that the player nearer the spot where the set ball is descending will usually set it. If the set is near the corner of the court then the end player will set the block. If the end player does not set the block in the correct position the center forward will still move to the end player to form a solid block. It is better to have a solid block which is not positioned correctly than to have a hole in the block. If the set is in toward the middle of the court, the center forward will set the block and the end player will move to her.

In blocking, it is important to stress that the players get into their positions as quickly as possible, shoulders slightly touching, before jumping up to block. The players should form a solid wall with their

hands. The outside player's hands should be turned in slightly. *Good timing is essential when blocking.* Blockers should execute their jumps as the spiker is about to contact the ball.

Blocking Drills

1. Players line up on both sides of the net, each player standing opposite another player. Their position is about two feet from the net. The players are facing each other. On a command from the instructor, the players jump up and touch fingers above the net. Repeat 10 to 15 times.
2. Players line up on the side line (use both sides of the court) facing the net. On command, one player from each side of the court steps up and stands in the left front position. In this position, the player jumps up for a block. As soon as she comes down, she runs to the center position to block, then to the right front position to block (Figure 1). As soon as the player blocks in the center front position, the next player in line begins the blocking series. In this drill it is important to stress quickness in assuming the blocking position and then jumping straight up and coming straight down. With beginners, there is a tendency to jump up while still moving sideways along the net.

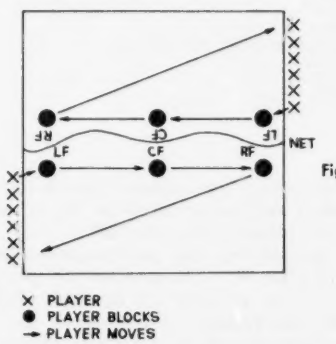

Figure 1. Blocking drill

A more advanced variation of this drill is to have two players on each side going through the drill at the same time. In this drill, the first player to reach the blocking area waits momentarily until the second player reaches her then they jump up together.

3. In this drill, two lines of spikers and one setter are on one side of the net. Three blockers are in their starting positions on the other side. Setter either sets forward or backsets. Blockers must position themselves and go up for a block. Blocker in center front position moves to her right *or* her left, depending upon the direction of the set (Figure 2).

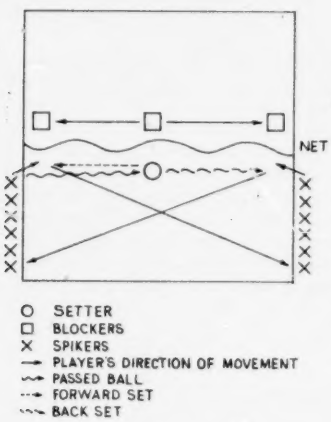

Figure 2. Blocking and spiking drill

Backcourt Play

Starting Position. Good defense necessitates teamwork, for each player is responsible for a designated area of the court. If one player is out of position the defense is weakened.

When a team is put on defense, the players immediately go to their starting positions (Figure 3). The reasons for going to these designated spots are that this strategy 1) prevents players from "planting" themselves in the middle of the court, 2) limits the player to just one direction in which she must move—forward, and 3) gives players space to start their initial defensive movement. These starting positions are to be taken each time the team is put on defense. A team may take these positions three or four times in one rally. Theoretically, if all players are in their correct positions and are mentally and physically alert they should be able to recover every spike.

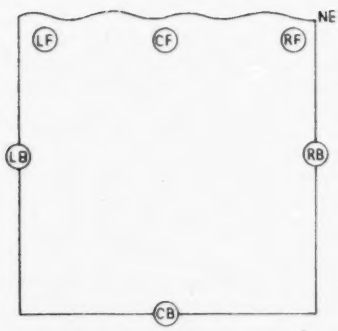

Figure 3. Defensive starting positions

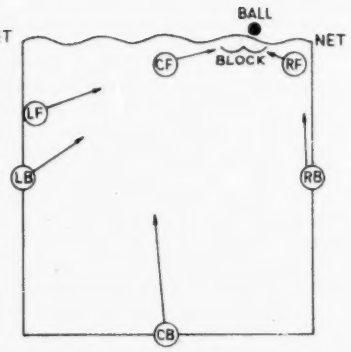

Figure 4. Direction of defensive movement

Analyzing the Plays. After a defensive player is in her starting position, she must then start analyzing the play. For a front row player, this includes watching the setter, the set, and the spiker's approach to the ball. If the set is close to the net and the spiker has a good approach, the two front row players nearest the ball come together to form a block. The third player drops back from the net to play a backcourt position (Figure 4). If, on the other hand, the set is back from the net or the spiker cannot position herself correctly to hit the ball down, the front row players should give a "no" call, meaning that they will not block. In this situation, the left and right forwards move approximately ten feet back from the net to the side line to help recover the ball. The center forward stays up close to the net with her side to it ready to set the ball if it is recovered.

Play analysis for a back row player includes watching the setter, the set, and the spiker's approach, but also includes watching the block. The backcourt players watch the block because they are responsible for any area that the block does not cover. While the backcourt players are analyzing the play they are at the same time starting their momentum by creeping forward. When a player is creeping in from her starting position she is slightly crouched, weight is on the balls of her feet, arms away from body approximately face level, eyes concentrated on the spiker and the ball while she takes small steps in the direction shown in Figure 4. A defensive player must continue to creep until the ball is contacted by the spiker.

Then and only then does she move quickly to recover the ball. In a "no block" situation, the center back player moves in about six feet from the end line.

The Dig. To "dig" a ball means to recover a hard-driven spike. The most popular means of digging a ball is to use the forearm bounce technique. In this technique, the player clasps her hands together rotating her elbows inwardly but keeping her arms away from her body. The ball should contact the forearm area and not the player's hands for the hand area does not present a flat surface.

The ideal situation when digging a ball is to keep the ball on the same side of the net so that a teammate can set the ball up for a spike, thus putting her team in an offensive position. If the dig bounces over the net, the team is still in a defensive position and will have to assume their starting positions once again.

With this objective in mind the player must soften the hit by not giving the ball any impetus but merely by letting the ball contact the forearm area. This means that the player cannot be running into the ball as she is digging it. Because of the speed that the spiked ball is traveling, the ball will easily rebound off the player's arms high into the air. With added body motion on a hard spike the ball will either rebound back over the net or hit the ceiling.

As mentioned previously, the forearm bounce technique is the most popular one used to recover a spike. This has been a recent transition from the conventional method of the two-hand chest dig. Some reasons for the change in method are that 1) player contacts the ball lower which gives her more time to react to the spike; 2) player has greater range, for she can easily play balls to her side without the necessity of having her body behind the ball; 3) player has less chance of finger injury; and 4) the ball generally rebounds up into the air more easily with this technique.

Defensive Drills

1. Divide class into small groups. Have one girl hit the ball to a line of about five girls who are standing side by side. The girls try to retrieve the ball in a controlled manner either with the chest pass or forearm bounce technique.
2. Place a table next to the net near the corner of the court. Instructor stands on the table and hits the ball to the different areas of the court. The instructor should throw the ball up about two feet in the air. As the instructor starts to throw the ball up, the players begin creeping forward from their starting positions to try to dig the ball. The two players who are in the blocking positions remain close to the net but do not block. The players rotate around to the different positions.

Volleyball—A New Approach

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There are many fundamental skills required to play the game of volleyball effectively. However, the most important one that must be learned, practiced, and understood is that of correct body positioning. Before a student can successfully master any of the fundamental techniques of the game, she must learn the basic rule of body positioning. To hit the ball properly using a two-hand pass, a one- or two-hand underhand "dig," an overhead serve, or the advanced skill of spiking, the ball must be in front of the body, and the body must face the direction of the intended ball fight. Once this basic fundamental is learned, the student will progress to advanced techniques more readily, and with a greater degree of success than ever before.

One of the finest aids that I have found for teaching fundamental and advanced skills of volleyball is the wall in the gymnasium. If a gym wall is not available, tennis backboards, handball courts, or even a smooth surface of an outside building wall could be used. The advantage is that the ball always returns to the person exactly as she hits it. If it is hit too hard, it is returned too hard and the student is unable to play it again. With repeated touches on the ball, the student soon learns precisely the strength of the touch needed to hit a ball, so it will be replayable to her on a successive number of touches. By decreasing and increasing the distance from the wall, the student feels kinesthetically the amount of force necessary to propel the ball that distance 25 to 50 times in succession. It is also important, in order to learn the concept for the "feel" of distance and force, that the student be allowed the movement of one foot, forward and back.

Body Positioning

The most important single fundamental in learning the game of volleyball is body positioning. The wall drill described above is useful in teaching the students the correct position of the body. It can also be used to teach the set, the one- or two-hand underhand dig, and the overhead bump. In order for the ball to be passed many times in succession, it must be contacted in *front* of the body, not over the head as many beginners try to do. The same rule applies to the dig and the bump. The ball must be in front of the body in

order to rebound with any accurate direction. Using the wall to represent the net, it is possible to illustrate the concept of body positioning, and to teach and drill on the theory that the ball must be between the person's body and the net to be hit properly.

Wall Drills for the Two-Hand Pass

1. Stand about four feet from the wall. Position one foot in front of the other and allow only the front foot to move. The ball must rebound at least six feet high on the wall, 25 to 50 times in succession.
2. Increase the distance from the wall to about six feet. At this distance the ball should rebound at least eight feet in height, for the same number of successive hits.
3. A more advanced drill to teach body positioning is the corner wall drill. The student passes the ball against one wall, then positions herself behind the ball with her feet and body now facing the wall to her right. She then contacts the ball with the body already turned and passes it against the corner wall which she is now facing. On the next pass, she must turn her body back to the left, facing the wall from which she originally started the drill. This will teach her to get her body behind the ball in order to control it. The ball must be hit at least 15 feet in the air to give the student a chance to make the correct turn.

Advanced Group Drill for Two-Hand Pass

1. Divide the students into groups of four and form them into squares. The ball should be passed first in a clockwise and then in a counterclockwise direction. This offers the same drill for body positioning as the corner wall drill. For this drill to be effective, the girl receiving the pass must be behind the ball, facing in the direction of her intended pass. The ball must be passed high to give the student time to make the turn. It is important to teach the student that she does not face the person passing the ball to her but must move to the ball so that her side faces the person passing the ball. The ball must cross in front of her body before contact as she faces the direction of her pass.

Hand and Wrist Control

Contrary to many accepted theories, I feel the "fingertip" control should not involve the use of the actual tips of the fingers but rather the use of the broad area between the second knuckle joint and the tips of the fingers.

The development of hand and wrist action is very important in teaching proper control of the ball. Many instructors are now beginning to advocate fingertips to pass the ball. This is adequate until students begin to experience the hard, fast overhand serve or spike, and then they become afraid of hurting their fingers. There are two problems involved in receiving this serve with too much fingertip emphasis. First, the ball usually is contacted too high above the head. Second, as it contacts the fingertips, the area to support the impact of the ball is insufficient and the ball flips off the fingers in a backward direction, causing it to go out of the court. The most important aspect of receiving the service is receiving the ball just in front of the eyes, so that the ball and the back of the hands are seen upon contact. Practice in contacting the ball on the second knuckle joint of the hand with stiff fingers will give a stronger and larger area of contact and will also give a more secure feeling of putting the hands up to receive a hard serve.

Wall Drills for Hand and Wrist Strengthening

1. Stand close to the wall, about three to four feet away. Pass the ball rapidly using only wrist action, and contact the ball using the surface of the fingers from the second knuckle joint to the ends of the fingers. Do not emphasize height, just rapid wrist motion. Increase the distance to six feet.
2. Stand two to four feet from the wall. Use only wrists to pass the ball, no arm push. Work on passing the ball to a height of eight feet or more. Use the broad area of the fingers.

Reacting to Faster Ball Flights

As skill increases and the game of volleyball progresses, the ball will travel at faster and faster speeds. The student must be prepared to handle a ball traveling at faster rates of speed.

Again the basic problem is getting the student to move her feet to the ball, so that at contact her body is behind the ball facing the direction of the intended pass, and the ball is in front of her eyes.

Wall Drill for Faster Ball Flights

1. Hit the ball against the wall using an overhead serve motion. Stand about six feet from the wall. Practice receiving the ball as it rebounds from the wall, trying to pass the ball above a line drawn on the wall at a height of ten feet. As proficiency increases, the ball should be hit harder and served lower on the wall, so that the rebound necessitates bending the knees to contact the ball in front of the eyes. Practice in receiving this hard

serve against the wall by returning the ball with a two-hand underhand dig is also possible.

Group Drills for Faster Ball Flights

1. Form groups of four to six players standing side by side with a leader approximately eight to ten feet in front. The leader begins by throwing the ball in a downward flight to each girl, providing practice in passing a ball with more velocity. If the ball does not reach the student so that she is able to contact it in front of her eyes, she must move her feet to the ball to make the correct contact.
2. If the leader can control the ball, she may increase the swiftness of the ball by using the overhead serve or spiking action, as she hits the ball to each girl. If she hits the ball too hard, she may have to increase the distance from them.
3. Using the same overhead serve action, this drill may be used to teach the bump or dig in response to a swift ball. It is important to know how to control the dig against the wall, and how to position the body correctly before undertaking this drill.
4. Use groups of six with each person facing the net. The leader stands on a chair on the opposite side of the net and throws the ball in a downward motion over the net. Practice consists of passing the ball high in the air to the center of the court using the two-handed pass. The two-hand underhand dig can also be practiced in this way. To increase the velocity of the ball, the leader can hit the ball over the net using the overhead serve, or spiking motion.

The drills and techniques described above can be varied to meet your own individual needs and facilities. The important factor is an understanding of correct body positioning. Players must be taught to stay behind the ball so that they can see the ball and the court. The ball can then be hit successfully in the direction desired. As the skill level increases and more advanced skills are learned, volleyball becomes a truly exciting game.

The Serve—An Advanced Skill

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A volleyball player has four basic serves from which to select the one she will use. The most elementary, or kinesthetically the least complex, is the *underhand serve*. The second is the *overhand serve*, which is more powerful, but allows greater possibility for error. The *sidearm serve* is rarely used and is not recommended for instructional purposes. The fourth choice is the *roundhouse serve*. This serve gained its popularity due to its use by the highly successful Japanese women who were 1964 Olympic Games champions.

The roundhouse serve is executed by the player who addresses the court with her side to the net, rather than facing the net as with the other serves. For a right-handed player, the left arm is extended (easy elbow) perpendicular to the net and the ball is held at approximately shoulder height. The weight is on the right or back foot with the knees slightly bent; the right arm is down with the open hand turned outward. As the ball is tossed upward by the left arm flexing slightly, the right arm raises upward to execute an arc, contacting the ball slightly in front of the face, overhead. The ball toss goes 18 to 24 inches overhead. The right arm then follows through with the body swiveling to face the court. The advantage of this serve is its speed (power) and its topspin, which make it difficult to pass. The placement of the serve is determined by the body's swivel as well as where the right hand contacts the ball. The ball toss is also important in placement and should be practiced.

Regardless of which of the four basic serves a player uses, it is possible to vary the flight of the ball to get action on the serve. A wiggle (side-to-side sway in the flight of the ball) is called a float. It is also possible to get a ball to curve to one side or the other and/or to drop. This is done by using the air valve when contacting the ball. To obtain this type of ball flight, it is recommended that the individual player experiment for her own ball toss to determine the point of contact, either right on or above the valve.

Coaching Hints

A most important aspect of a player's serve is accuracy. It is very good to be able to execute the various types of serves and to be able to get action on the ball, but in the final analysis the most important thing is that the player be able to depend upon her serve to do what

she wants. In order to achieve this confidence and level of skill, the player must practice serving. A skilled player should be able to serve to any position on the court at will. It is vital that a player know exactly what amount of contact will send the ball to what place on the court and at what trajectory. A player will want to serve a high arching ball to some receivers, and a short or low ball to others. In general, the flatter the arc of the ball in moving to the receiver, the more difficult it is to receive.

Furthermore, a player should want to experiment with her own serve to develop increased proficiency and versatility. In experimenting, it is important to modify only one variable at a time in order to discover cause and effect (i.e., valve position, contact point, feet position, etc.). Therefore, for advanced players, a part of every practice session should be given over to the serve. As she practices, each player should have definite goals for accomplishment. Because the ball's flight is influenced by such variables as the condition of the ball, type of covering, amount of air pressure, etc., the practice ball should be as similar to an official game ball as possible.

Strategy

For advanced players, the serve is a dynamic offensive tool. Once players are able to control the placement of their serves, it is important that they use strategy in planning where they serve. In determining the placement of the serve, the position of the opponent's spikers is given first consideration. Two basic strategy rules for serving are the following:

RULE 1: Serve away from strength.
RULE 2: Serve to the opponent's weakness.

These are not just the reverse of each other.

Strategy Rule 1 means *not* to serve to the spiker in the front row who is in her strongest (on-hand) position (i.e., for a right-handed spiker, the LF position). This immediately puts the opponent on the offensive. It is better to start them on the defensive. A wiser serve would be to the RB position. If the right-handed spiker is in the CF position, then the best places to serve are the LB or LF positions. The positions not to serve are CF or RB as these are the easiest offensive pass positions. For left-handed spikers, the reverse is true; their strongest position is RF.

Strategy Rule 2 means that if a player is a poor serve receiver and is called by the official for her passes, then by all means consider serving to her. Usually the more such a player is served to, the more difficult psychologically it is for her to put up a good pass

as the pressure is really on her. Discover the poor serve receivers by noting which players have difficulty in passing when their teammates serve.

A second aspect of this rule is to serve away from the players, rather than directly to them. Make the receiver move in order to pass the ball. All players can be made to move to the side, and unless they are skillful passers, this can be a problem for them. A tall person usually has difficulty with a short, low serve; a high serve is a good one to send to a short player. Now that many of the advanced players are using the bump in serve receiving, a high serve is more difficult to pass than a low one.

Summary

In the selection of the type of serve to use at the advanced level of play, it is important to consider control as well as power. If a player can control the placement of her serve and is highly accurate (nine out of ten) with the overhand serve, then this is the preferable serve because it is so powerful. But if a player's overhand serve (or roundhouse serve) is not particularly powerful, or if it lacks accuracy or control, the player should consider developing her underhand serve. An underhand serve, when used effectively, is as much a tool for the advanced player as any of the other more powerful serves.

A good server at this level is not just one who has a powerful serve. A good server is a player who is cognizant of the strategy of the game and is skilled enough to utilize it.

VOLLEYBALL SKILLS CHART

NAME	R. SET-UPS			WALL VOLLEY			PASS TEST			SERVE PLACEMENT			SERVE		
Level	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Number	8	16	32	30	40	50	180	220	290	4	8	12	30	50	60
1. *Anderson*	X	X		X			X	X	X				X		
2. *Brown*	X			X	X		X	X	X	X	X		X		
2. *Carlson*				X			X			X	X		X	X	
4. *Davis*	X	X	X	X	X		X		X	X	X		X	X	X
5. *etc.*															

Figure 1. Sample skills chart

testing

A Volleyball Skills Chart with Specified Attainment Levels

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A skills chart with specified attainment levels for each selected skill can serve the teacher and her students in many ways. The chart, which would contain skills that are important in the game and have been taught or presented to the students, enables the students not only to see their daily progress but also to compare their performances with those of other students within the class. Teacher and students can pinpoint the skills which are weakest and therefore warrant the most practice. A skills chart can motivate players of all ages and all levels of ability.

Levels must be carefully chosen in order to challenge the students adequately. To simplify the chart, three or four levels of attainment should be selected for each skill. The first level should be attainable by almost all students; the second level should be increasingly more difficult, but attainable by about 50 percent of the students. If four levels are employed so that there are two middle levels, approximately 60 percent of the students should be able to pass level two, and approximately 40 percent should be able to pass level three. The highest level should be a difficult one which only a few students in each class are able to master. These arbitrary percentages were established with the intent of encouraging the poorly skilled (by permitting mastery of level one with some effort) and of placing a premium on mastery of the top level while still providing good discrimination among students. Setting the appropriate level of attainment is a difficult process which can be done accurately only by considering the age and the sex of the students as well as the amount of time previously spent in learning the skills involved. Some experimentation is needed before suitable levels can be established.

Several volleyball skills which can be self-tested or teacher-administered and which are suitable for use with the chart are suggested. Most of the skills have been used successfully with both high school and college women; however, the levels may need modification for use in different situations.

Repeated set-ups. A 13-ft. rope is placed over the hitting area. (A 13-ft. wall line can be used.) The subject starts the overhead volley with a self-toss. Score is the number of *consecutive* volleys that reach the 13-ft. height. Failure to reach the designated height terminates the trial, and "holding," "pushing," a body foul, or any other game foul also terminates the trial. Four trials are given, and the score is the sum of four trials.[1] Twenty hits should be considered a maximum for one trial and it is not necessary for a player to continue the trial in excess of 20 hits (80 possible points).

Wall volley. A 2-in. line 7 ft. 4½ in. high and 10 ft. wide is drawn on the wall. A 10-ft. restraining line is placed 5 ft. from the wall. The subject tosses the ball against the wall and attempts to volley the ball legally on or above the wall line while remaining behind the restraining line. Only hits made from a rebounded ball are counted. The score is the total number of hits scored in three 20-sec. trials.

Revised pass test.[2] The test consists of starting the ball with a self-toss and volleying over a rope and onto the target (30 ft. by 2 ft.) as shown in Figure 2.

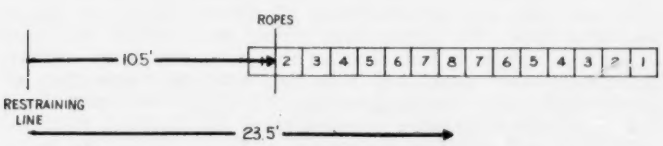

Figure 2. Floor target for the pass test

[1] Department of Physical Education for Women. *Report of the Volleyball Committee.* University of Wisconsin: Madison, 1962-1963.
[2] Liba, Marie R. and Stauff, Marilyn R. "A Test for the Volleyball Pass." *Research Quarterly* 34: 56-63, March 1963.

In the revised test a 9-ft. rope has been added and the scoring for height is as follows:

4 points scored for ball passing over 13-ft. rope
3 points scored for ball between 11-ft. and 13-ft. ropes
2 points scored for ball between 9-ft. and 11-ft. ropes
1 point scored for ball under 9-ft. rope

The total score for one trial is the number of accuracy points (from the floor target) multiplied by the height score. A perfect score for one trial would be 8 times 4 or 32. Ten trials constitute the total test (320 possible points).

Serve placement. Divide the court into six equal areas as shown in Figure 3. Each area is numbered.

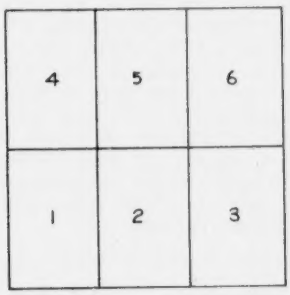

Figure 3. Target for serve placement

The server serves first to area 1, then to area 2, and so forth until area 6 becomes the target. The procedure is repeated for a total of twelve serves, two to each of the six areas. One point is awarded when a legally served ball hits within or on a line bordering the target area (12 possible points).

Serve velocity and angle of projection. At a distance of 30 ft. from the wall, a player serves to the wall above a 7-ft. 8-in. line, and the ball is timed from hand contact to wall contact. The wall is divided into three areas by marking two additional lines on the wall at distances of 11 ft. and 13 ft. from the floor. Area 1 is the space between the 7-ft. 8-in. line and the 11-ft. line, area 2 is the space between the 11-ft. and 13-ft. lines, and area 3

is the space above the 13-ft. line. Balls hitting the wall under area 1 are discounted, and a score of zero is recorded for that trial. Balls landing on either the 7-ft. 8-in. line or the 11-ft. line are scored as area 1, and the balls landing on the 13-ft. line are scored as area 2. Ten serves are taken and the area and time for each serve are recorded. Points are then awarded for each serve and accumulated accordingly (80 possible points). Figure 4 contains the appropriate point values for all serves. Points were assigned on the basis of three factors—velocity, angle of projection, and landing point. The serve with the greatest velocity, lowest angle of projection, and a landing point within and in the back portion of the court received the greatest number of points.

Many other tests of skill may be included in a chart. For example, if the spike has been taught, spiking accuracy and spiking force could be included. The face of an archery target could be placed in a strategic spiking area such as the left back corner. Ten spikes may be attempted from the center front position, scoring the gold—5, red—4, blue—3, black—2, and white—1. To obtain force measures, the distance and time in flight for each ball hit would have to be determined. Tables for velocity could then be used, assigning a greater number of points for more powerful spikes with downward angles of projection than for the less powerful hits projected at positive angles. Experimentation with the dig pass (bounce pass) used as a wall volley test might also prove worthwhile as a part of a skills chart.

TIME	AREA 1	AREA 2	AREA 3
.00- .69	6 points	6 points	6 points
.70- .89	8 points	4 points	4 points
.90-1.09	5 points	6 points	5 points
1.10-1.29	3 points	3 points	5 points
1.30-1.49	2 points	2 points	2 points
1.50 & up	1 point	1 point	3 points

Figure 4. Point values for serve velocity and angle of projection [1]

[1] Underhand serve assumed.

A skills chart can serve many purposes. When used throughout a course, the chart is a very helpful tool for motivating students to utilize the time before and after class to test themselves and their classmates on the various skills. Using the chart to practice individually-diagnosed weaknesses during ten or fifteen minutes of class time will undoubtedly result in more meaningful, self-directed practice of skills than the same time spent in traditionally conducted practice periods in which everyone practices the same skills with the teacher changing the drills and skills at set time intervals. If court space is not sufficient, the fringe areas may be utilized for providing excellent practice in many of the skills included on the chart. The chart may be used solely as a self-testing motivational device, or it may be used as objective evidence of attainment in order to partially determine grades.

Self-Testing with Rope and String

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With teacher time at a premium in large physical education classes, it becomes important to provide practice situations which will aid the student in judging her own skill performance. Self-testing practice situations provide opportunities which enable students to note progress in the development of certain physical skills. Through a personal record of performance in these practice situations, consistent errors as well as improvement may be noted. Scanning the personal records will aid the teacher in determining where her assistance is most necessary.

The following self-testing situations for basic volleyball skills can accommodate large classes, require a minimum of extra equipment, and can be set up quickly by the teacher or by student leaders. The emphasis in each situation is on the height at which the ball should travel as well as the placement of the ball.

The Pass

The purpose of the pass is to set the ball up to a teammate. The pass should travel a horizontal distance of 14 to 17 feet and be high enough to enable a receiver to get under the ball. A height of 11.5 feet is recommended. To enable many students to practice the pass at the same time, a light-weight rope or heavy string may be stretched across the gymnasium or outdoor playing area at the height of 11.5 feet. It is often convenient to stretch the rope or string from one basketball backboard to another. A line should be drawn on the floor parallel to the rope at a distance of 6½ feet. This will be referred to as the passing line. Two more lines should be drawn on the other side of the rope, parallel to the passing line, at distances of 14 and 17 feet from it (Figure 1).

The passer, standing on the passing line, should toss the ball to herself and pass it over the rope or string so that it lands between the lines on the opposite side. The visual points of reference will enable the student to see how accurate her pass is. She may record each trial, indicating the height of the pass (over or under the string) and the distance it traveled (short of the target, on the target, or on the far side of the target). Students achieving proficiency in the pass from a self-toss may progress to passing a ball which has been passed to them by a classmate.

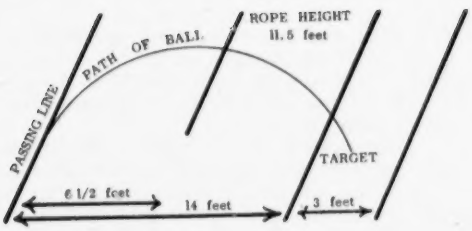

Figure 1

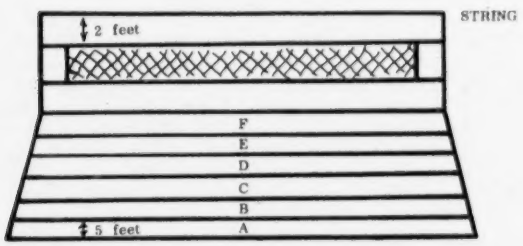

Figure 2

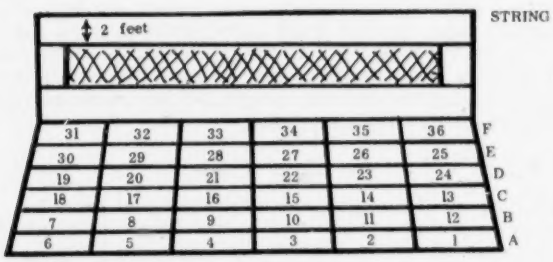

Figure 3

The Offensive Volley

The purpose of the volley is to return the ball over the net so that it is difficult for the opponents to return it. The volley should travel close to the net, and land deep in the opponent's court.

A string should be stretched parallel to the net and two feet above it. Lines should be drawn on the court, parallel to the net, at 5-foot intervals. The areas between the lines should be lettered or numbered for recording purposes (Figure 2).

The student stands close to the net opposite the target area. She should toss the ball to herself and volley it in such a way that it passes under the string and lands in the area closest to the end line of the opposite court. She may record each trial, indicating the height of the volley at the net (under or over the string) and the distance the ball traveled, by the number or letter of the area in which it landed. Students may progress to volleying a ball which has been passed to them by a teammate.

As the student becomes proficient in volleying the ball to the rear of the opponent's court, she may practice right and left placement of the volley. This may be accomplished by drawing lines at 5-foot intervals perpendicular to those already on the court and numbering the resulting zones (Figure 3). The student should indicate the number of the zone for which she is aiming on the record and record each trial in terms of height and placement. In this way the same court markings can be used for varying placement practices simply by choosing another zone as the target.

The Serve

The purpose of the serve is to initiate play and to project the ball over the net in such a way that it is difficult for the opponents to return. A serve should pass close to the net and land deep in the opponent's court. The serve self-testing situation is the same as that described for the volley, with initial practice designed for attainment of proficiency in the height of the serve and distance from the net, and with subsequent practice in right and left placement as well as height and distance from the net.

The Spike

The purpose of the spike is to hit the ball over the net at a downward angle so that it lands deep in the opponent's court. Because the ball must be contacted above net height, the jumping ability of the student should be considered before teaching this advanced skill. A line should be drawn on the wall at net height. The student

should stand with her side to the wall with a piece of chalk in the preferred hand, then jump and reach, marking the high point of the reach on the wall. Those students who have the ability to jump and reach above the height of the net should be selected for practice in the spike.

The self-testing practice situation for the spike utilizes the targets described for the offensive volley with initial practice in placement from the net (Figure 2). Subsequent practice should include right and left placement (Figure 3). If additional volleyball standards are available, they may be set up 10 feet from the net on the target side of the net. A string should be stretched between them at net height (Figure 4). The spiked ball should pass under the string. If this device is used to measure the angle of projection, the student should record the height of the spike (over or under the string) as well as placement for each trial.

The Tip

The purpose of the tip is to return the ball over the net so that it lands close to the net on the opponent's court. The ball should be hit or tapped so that it travels at a downward angle. Tipping may be practiced initially from a toss to self and later from a pass. The student should stand close to the net, tip the ball while it is above net height, and direct it toward a target on the opposing court. The target which has been described for volleying practice may be used for tipping (Figure 2). The area closest to the net will be the target. Students should record the number of the area in which the ball lands. As students become proficient in tapping the ball into the area closest to the net, they may practice right and left placement of the tip. Again, the targets described for use in the volley may be used for this practice (Figure 3). The areas closest to the net should be chosen as targets. The student should record the letter of the area chosen as the target and record the actual placement of the ball for each trial.

The Set-up to Self

The purpose of the set-up to self is to set the ball straight up so that it can be played again easily. Although this skill is not used in the official game of volleyball, it may be used by beginners in the modified game. It is easier for beginners to control the placement of a pass or offensive volley if it is preceded by the set-up to self. The set-up should travel straight up and reach a minimum height of 10 feet. A practice situation may be devised by using the rope or string stretched across the playing area at the height of 11.5 feet

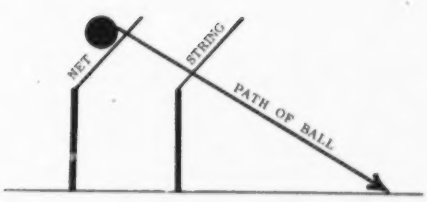

Figure 4

Figure 5

recommended for the pass. Circles with a 2½-foot radius should be drawn on the floor (Figure 5).

The student should stand in the circle, toss the ball to herself, then set it up in such a way that the high point of the set up is above the rope or string and the descending ball lands in the circle. Each trial may be recorded in terms of height (above or below the string) and direction (in or out of the circle).

When students become proficient in setting the ball up from a self-toss they may progress to a similar situation in which the circle is drawn at a distance of six feet from a wall or backboard. The student should stand on the circle, toss the ball against the wall with an underhand toss, and set the ball up as it rebounds.

Administration

Methods of class organization for self-testing in volleyball will vary according to the facilities available and the number of students in the class. With self-testing practice situations all of the students can be active most of the time practicing, retrieving balls, or recording scores. Each student should have her own score card designed according to the number and types of self-testing situations to be included in the volleyball unit. Instructions for the recording of practice trials should be given along with the instructions for self-testing. Students should be made aware of the importance of recording all trials to insure a true picture of their skill improvement.

The self-testing situations which have been described utilize only two basic physical set-ups which can be used for practice from elementary volleyball skills to advanced skills. Students of any age enjoy self-testing, and the element of competition exists throughout the volleyball unit.

Wall-Volley Skill Tests

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As early as the 1930's, physical educators were attempting to devise skill tests in volleyball. A number of good test batteries were constructed with adequate statistical analyses. These tests, however, need to be re-evaluated with respect to the current game of volleyball. In addition, measurement in most sports skills has improved due to the refinement of measuring instruments, greater knowledge of the use of statistical tools, and pertinent research related to sports such as volleyball. This information should enable the physical educator to select and modify the most appropriate tests for specific situations, whether they are to be used as practice devices, classification devices, or final estimates of an individual's ability to perform the skills in the game of volleyball.

The wall-volley test, one of the most popular of the volleyball skill tests, can serve many purposes. It can be used at the beginning of a unit to classify students into homogeneous teaching groups. The test can also be used as a final evaluation of general volleyball playing ability to supplement measures of such specific skills as the spike, pass or serve, as well as the teacher's ratings of ability. If the test is given at the beginning and at the end of the unit, scores can provide a basis for evaluating improvement. Skill tests such as the wall volley can be extremely useful aids in motivating improved performance.

The wall-volley test is also an excellent practice device. Brady,[1] in studying two comparable skill groups of males, found that the group that practiced the wall volley won more games, were better players, and scored higher on the final test than those who had not used the test as a practice device. The test requires active concentration on the flight of the ball, constant adjustment of body position in receiving the ball, and accuracy in sending the ball to the wall. These are all desired actions in actual play. Wall-volley practice can also aid in developing and maintaining strength in the fingers and arms, which will eventually lead to better long passes. Progress can be witnessed within the first few trials of the test.

[1] Brady, George F. "Preliminary Investigations of Volleyball Playing Ability." *Research Quarterly* 16: 14-17; March 1945.

West [2] found that 50 percent of the subjects scored highest on the last trial of a three-trial test with a three-foot restraining line and 47 percent scored highest on the third trial when using a seven-foot restraining line. Sixty-six percent scored better on the last of two trials with no restraining line. Such knowledge of improvement facilitates learning.

The chart below gives pertinent facts on several wall-volley tests. Some testing procedures are common to most tests and some are unique to a specific test.

Author(s)	*Reliability*	*Validity*	*Specifications*
Bassett, Glassow, and Locke (Wisconsin tests)	.84 test and retest with best scores .89 test and retest with total scores 119 college women	.51 with subjective ratings 99 college women	7′6″ high 12′ wide 6′ start line no restraining line 3-30 sec. trials best score
Brady	.92 test and retest 282 college freshmen, 240 college sophomores, and 15 outstanding Y members, all males	.86 4 experienced teachers' ratings	11′6″ high 5′ wide no restraining line 1-1 minute trial
Clifton	.83 test and retest 45 freshmen and sophomore college women	.70 5 experienced judges' ratings 45 college women	7′6″ high 10′ wide 7′ restraining line 3-30 sec. trials sum of trial 1 and 2
French and Cooper	not given	.72 4 trained judges 47 high school girls .43 4 trained judges 180 9th and 10th grade girls	7′6″ high 10′ wide 3′ restraining line 10-15 sec. trials sum of best 5 trials

[2] West, Charlotte. "A Comparative Study Between Height and Wall Volley Tests Scores as Related to Volleyball Playing Ability of Girls and Women." Unpublished master's thesis. Greensboro: Woman's College of the University of North Carolina, 1957.

Author(s)	*Reliability*	*Validity*	*Specifications*
Ladner	.86 test and retest 207 college women	.70 subjective ratings 206 college women	9'6" high 8'6" wide no restraining line 1-1 minute trial
Mohr and Haverstick	test and retest on 1 trial 3' .81 5' .81 7' .83 69 college women	3 judges' ratings 3' .64 5' .67 7' .75	Russell and Lange test
Russell and Lange	.87 70 junior high school girls with best scores .90 69 junior high school girls with total scores	.67 7 judges' best score 66 junior high school girls .67 7 judges' total score 66 junior high school girls	7'6" high 10' wide 3' restraining line 3-30 sec. trials
West	Best with 2nd best .95 134 high school girls .96 62 junior high school girls .91 14 outstanding players .96 15 graduate majors .98 all groups 225 women	ratings .67 134 high school girls .65 52 junior high school girls .84 graduates .85 all groups 205 women	10' high 5' wide no restraining line 2-30 second trials

General Rules for Wall-Volley Tests

The following rules are some general suggestions for administration of the tests.

Equipment and facilities. The wall and floor lines should be two inches in width. They should be painted a color that shows up well on the contrasting surface. White is most frequently used. Vertical lines should be placed perpendicular to and at the end of each wall line. These lines help to score close hits more objectively.

There may already be permanent lines on the floor in the testing area. If these lines do not vary to a great extent from the desired

distance for the restraining line, it is wise to use the permanent lines. Too many lines within one or two feet are confusing to the subjects.

Some authors recommend a tin strip or some material which will audibly announce a line hit. This is another aid in improving objectivity if the selected material will not deflect the ball from its natural flight.

All subjects should be tested by synchronized watches or by the same watch. If several stations are used, a well trained central timer can be employed. This person can start and terminate all trials with a loud, clear signal.

If scores are compared, all subjects should take the test from the same unobstructed wall surface, since some are more resilient than others.

Good regulation balls which are inflated properly should be used. Additional balls should be available to the person being tested. These should be placed fairly close by in a designated place. Having the subject chase a ball or deducting hits for losing control of a ball appears to overpenalize. The penalty of lost time in securing a new ball and placing it in play is sufficient.

Administration and scoring. Scorers should be well-trained in calling fouls such as "lifting," "pushing," and "holding."

If a restraining line is used, someone should specifically watch for line violations and call "line" to inform the subject and the scorer of each foul.

The scorer can easily serve as a recorder. Having two or more scorers recording independently improves the objectivity of the test.

Several testing stations can be working at one time. Part of the test's popularity is due to its economy of time. Ladner [3] tested 35 to 40 students in about a 15-minute period.

A toss should start the ball in play to begin a trial or following the loss of a ball. This toss does not count as a volley. For a hit to be counted, the ball must be volleyed after the student receives the ball from the surface of the wall.

Any hit made while on or over the restraining line is not counted.

It should be considered a foul if a player sets up the ball to herself or commits a body foul.

Comments. Three trials seem to be sufficient to produce acceptable reliability for most age and skill groups. It is advantageous to test all subjects on several days to consider diurnal variations in performance.

[3] Ladner, Jane. "Volleyball Wall Volley Skill Test." Paper delivered at the Southern District Association of Health, Physical Education, and Recreation Convention. Biloxi, Miss., 1954.

Trials exceeding 30 seconds in length are extremely fatiguing for most women players. Exceptionally highly skilled players can volley longer, however.

There is some advantage for taller subjects if a three-foot restraining line is used with a 7 foot 6 inch wall line. West [4] found a correlation of .41 between height and wall-volley test scores when skill was held constant. To negate this advantage, the restraining lines should be set farther back or the wall line should be raised.

For beginning or poorly skilled players, this height advantage appears negligible. Beginning players need no restraining line until skill improves considerably. When beginners and poorly skilled players were moved back to seven feet, close to 20% scored zero for three 15-second trials. A similar number failed to score when the wall line was raised and the restraining line was eliminated. For better distribution of scores and greater discrimination between subjects, a 7 foot 6 inch wall line and no restraining line is recommended. As skill improves, the wall line should be raised or the restraining line extended until a maximum of 7 feet is reached. Use of a seven-foot restraining line is a good test for intermediate and skilled players. If drilling or testing is for high sets or passes, a 10-foot high wall line reduced in width to five feet serves as an excellent measure.

Incorporating these suggestions for the wall volley tests into the appraisal of volleying playing ability should result in more accurate evaluation. Although a great deal of work has been done in the area of volleyball skill tests, there are many possibilities for continued improvement through more refined analysis and study of current test procedures.

[4] West, *op. cit.*

Coed Volleyball for College Recreation

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Volleyball is truly an ideal sport for coed participation because the essence of good volleyball is team play. Although many physical education departments successfully include coed volleyball in their instructional programs, few realize and utilize the great potential for college recreation inherent in this increasingly popular activity.

Informal

The college recreation program ought to be informal in its approach. Participation should be made as easy as possible for students by dispensing with formalities such as formal registration, requiring regular attendance, previous class instruction, and a prescribed uniform. Other than proper footwear, students should be permitted to wear whatever they wish. An experience of quality, action, and enjoyment can be provided by stressing quality of team play, active participation by all team members, and "fun plus."

Skillful

The DGWS and USVBA rules provide for corecreation volleyball in a college recreation program. Better team play is encouraged by the rule which states that when a ball is played by more than one player on a team, one of these must be a girl. Students should be taught to make their play on a "1-2-3," pass-set-spike, with a girl in the set-up position. Failure to accomplish this pattern may result in cries of "Girl! Girl!" when the third and final hit must be made by a female team member. Much hilarity arises under such circumstances.

It is a mistake to alter the rules in the coed situation by declaring the spike illegal. Such a rule modification tends to make girls afraid of a spike recovery and reluctant to learn the spike.

If spiking is allowed, girls understand quickly and vividly the need to develop a good defensive low pass, such as the one- and two-hand

dig. The opportunity to practice these passing skills is provided in the game which permits spiking. Teach the power game as it should be played: offensive serve, two-arm bounce pass, spike, block. To improve the quality of play, occasionally add certain skill restrictions, such as—

1. Boys, then everyone, must serve overhand.
2. Each team must use three hits.
3. Each team must use the "1-2-3" pass-set-spike pattern. Later add that #2 must be a girl.
4. Each team must play the ball in a certain 1-2-3 pattern:
   a. Pass to the center forward who sets the ball to the right or left forward.
   b. Pass to the left or right forward who sets the ball to the center forward.
5. Each team must use a "change-of-pace" play:
   a. Passer (#1) does the set-up.
   b. Set-up (#2) hits the ball directly over the net.
   c. Spiker (#3) tips the ball over the net in a hairpin shot.

This type of coed volleyball brings out the best in all players. The overhead serve, chest pass, dig pass, spike, and block become desirable goals for all players.

It is particularly necessary in coed volleyball to teach all students to play their position and to "call" for the ball. The girls must understand that they are expected to play the ball in their area, and the boys must expect them to do so. All students appreciate the efforts of one another. The young man who has executed a point-winning cross court spike will often turn to the young lady beside him and give credit where it is due by remarking "nice set."

Competitive

Coed volleyball is adaptable for several types of competition. Coed intramural tournaments combining men's and women's dormitories or sorority-fraternity units can provide a regular program of corecreation with a built-in competitive element.

Interscholastic coed competition has worked well on a round-robin schedule of monthly meetings. The encounters are often climaxed by coed swimming.

Coed volleyball is an excellent and exciting sport for college recreation. The game is vigorous, challenging, and enjoyable. Girls generally achieve a higher skill level than in an all-girl class. Boys learn better team play. Together they have a wonderful time.

Volleyball Doubles

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The game of volleyball doubles is an exciting, fast adaptation of volleyball. Advanced players are challenged by the great demand for accuracy, precision, and use of deceptive plays. It is popular in high schools, in colleges, and on our western beaches.

The historical background of volleyball doubles is obscure. Joan Schutz, University of Washington, wrote a brief article describing it in the DGWS *Volleyball Guide* (1945-47), and the implication is that the game originated at the University of California, Los Angeles, in the Women's Athletic Association.

Court: One-half the size of the regulation volleyball court split lengthwise; or a rectangle, 60 feet long and 15 feet wide. Two volleyball doubles courts are marked on one regulation volleyball court (see diagram).

Equipment: Regulation volleyball.

Team: Two players: one forward and one back.

Game: The ball is put into play, and the game proceeds in exactly the same way as the regulation game of volleyball. The only exception is as follows:

A game consists of *whichever occurs first* of the following, provided one team has a two-point advantage:

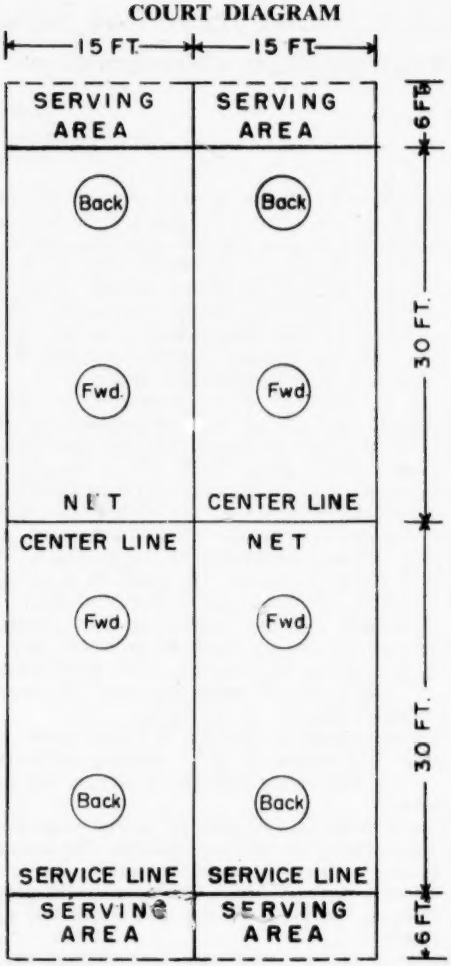
a. A team has 15 points.
b. Four minutes of playing time.

Playing Rules: The rules are the Official Volleyball Rules. The only exception is in Rule 7, where the time of the game is reduced from eight minutes to four minutes.

Volleyball doubles affords players excellent practice in more advanced skills, such as set-and-spike, set-up control, forward set, overhead set, and offensive and defensive plays. Players are encouraged to incorporate more advanced serves, overhead, miscellaneous spins, and curves.

Although we recommend volleyball doubles as an exciting, highly skilled game for advanced players, it can be adapted for use as a lead-up game where the purpose is to develop precision, skill in covering the court, and team plays.

COURT DIAGRAM



Two volleyball doubles courts are marked on one official volleyball court.

Beach Volleyball—A New Recreation Dimension

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Narbonne Senior High School
Los Angeles, California

Along the southern California beaches on any day that it isn't raining or too windy, one can see the beach volleyball zealots performing. Just who the original people were who decided to take volleyball to the beach is not known, but the fruits of their pleasure have certainly multiplied. There are the Sunday family picnic-type games and the organized skillful doubles games that are played at established key spots on different beaches. The five main beaches where good games may be seen are located in the area that stretches from Laguna Beach to Will Rogers State Beach.

Regardless of the level of skill and whether or not they are officiated, the games are played with enthusiasm and enjoyment. However, the skilled games of beach volleyball are certainly more interesting to watch than play. These, of course, involve more strenuous and concentrated participation than the family-type game.

Beach volleyball is the climax to the winter volleyball activities and many tournaments are played. These tournaments are varied: Some are open and others are limited to single, double, or triple A players (triple A being the best). The rules of the United States Volleyball Association (USVBA) are used exclusively.

Beach clubs, county and city recreation departments, and the players themselves who use the facilities provided at a particular beach sponsor the various tournaments. The participants may be men, women, or mixed groups. Both four- and six-member teams compete, but doubles play is the most popular.

The major tournaments are publicized in the sport sections of local newspapers. The events are given advance publicity which is usually followed up with action pictures of players and the winners with their trophies.

During the days when no tournaments are in progress, a scratch sheet is used for a sign-up of challenge games. The winners remain on the court as long as they can, until they are beaten or relinquish their spot to another pair. A fifteen- or eleven-point game may be played, depending on the length of the waiting list and the number of courts available.

The top triple A players, both men and women, are generally found to play doubles regularly during the summer in order to keep

themselves in condition for the winter season. Winners may remain on a court for several hours of continuous and strenuous exercise. With only two people to cover a full court, the moving and jumping in the sand to dig, pass, set, and spike a ball gives the players all the activity that is necessary to keep in shape.

In the doubles games where a man and a woman comprise a team, the woman plays near the net, while the man covers the entire back court to receive the first ball. Whether it is the service or an offensive play by the opponents, he attempts to pass the ball to the girl who sets the ball. Then he tries to play the ball offensively on the return. However, when two men or two women play as a team, they both cover the back court to receive the first ball. The one taking the first hit attempts to pass the ball to the center of the court near the net. The other then moves in to set the ball for the first to spike.

The sport has experienced a tremendous growth in recent years and the reason for its popularity is evident. In terms of the degree to which various participants wish to be involved, beach volleyball, as it is known in southern California, has a valuable offering for everyone.

miscellaneous

The Ideal Volleyball Official

DOROTHY V. HARRIS

Can any one individual ever be the ideal official? What qualities and characteristics are necessary to warrant that designation?

The ideal official, according to Phillip Fox, is mentally, physically, and emotionally able; he is inconspicuous; he sees everything but is rarely noticed himself. He is firm but considerate and courteous; he is at the right place at the right time. He knows what the rules say and mean and can employ the proper techniques and procedures of officiating.

Time magazine states that the official should combine the integrity of a supreme court justice, the physical agility of an acrobat, the endurance of a Job, and the imperturbability of Buddha. In addition, he must know hundreds of rules, make split-second decisions with confident finality, and be unaware of anything except the ongoing play.

Some coaches feel the official should be carefully screened as to reflexes, objectivity, judgment, total recall of rules, and absolute consistency without error in directing game play. Other coaches think the official portrays the authoritative figure, a bully, one they can yell at, condemn, and "pass the buck" to.

Those of us in education view the official as an example to follow, a teacher, a leader, one who reflects the desired value system, and one who exemplifies the best there is in play.

An official assumes the responsibility of directing play within the framework of specified rules which are structured to ensure fair play and equal opportunity to compete within the bounds of safety.

In our age of permissiveness, this framework of rules provides a structure within which discipline may be taught and instilled. In official play there is a right and a wrong. Officiating trains an individual to stand alone and to make intelligent decisions before a group. As this decision making, based on knowledge, experience, training, and changing conditions, becomes a natural response, it has desirable carry-over value.

Proper training of officials requires good competitive games for the student official to use as a laboratory for practice. Quality games should strengthen the entire instructional, intramural, and extramural volley program.

Requiring team members to officiate is an excellent way to teach sportsmanship and to develop character. A playing member who has had training in officiating is likely to have a greater appreciation and respect for officials.

Types of Officials

All of us have observed a variety of types of officials.

Leading the list is the *official-official* who directs according to the letter of the rule, paying no attention to the spirit of the game.

The *unofficial* just picks up the whistle with the idea that anyone can officiate.

The *out-of-it official* is the meek quiet one who rarely calls anything; when she does she is apologetic about it.

The official who feels she must call an equal number of violations for each team is known as the *see-saw official*. If she misses a call against one team, she ignores the next one for the opponents.

The *show-off official* demands the center of the ring and plays to the spectators, mimicking each violation with great show.

The *good official* knows the rules and signals, uses good judgment in determining illegal play, and is quietly efficient in the performance of her duties.

Becoming an Official

As a rated or beginning official, you should take advantage of every opportunity to practice officiating. Read the rules, learn them, and continue to read them until you know them backward and forward. Find someone who trains and rates officials and question those things you do not understand. Attend workshops and clinics. Practice every chance you have. Request that games be scheduled in the instructional or intramural program to provide practice situations. Start to learn as soon as you can; volleyball provides a good foundation for training in the officiating of other sports. Study your rules and take the written test the first time it is offered. Review your test and clarify all questions you missed. Watch other good officials and mentally officiate with them. Practice and practice so you will be able to concentrate on the game when you take your practical examination. Do not expect a National rating the first time but continue to practice and to study your rules. Find out what your practical examination evaluation was so you can improve your weak points. Take advantage of every opportunity to practice and to learn and your chances of becoming a National official will be much greater.

Specifics in Officiating Volleyball

In general, the article entitled "Techniques of Officiating Volleyball," which appears in each edition of the DGWS *Volleyball Guide*, provides a guide for the officials. Learn the signals and practice so they become automatic with the decision. Acquire the habit of holding your whistle in the hand to the receiving team's side of the net. When the side-out signal is given, transfer the whistle to the other hand. You can easily keep the teams straight following this procedure as the serving team is always to the side of the free hand which is being used for signals.

Know all fouls and violations; have someone demonstrate all types of illegal ball handling until you can recognize it each time. Identify it by blowing your whistle, making a verbal announcement, and giving the proper arm signal. Train your eyes to watch the ball constantly: watch the person preparing to receive the ball, watch the preliminary arm and hand action as well as the immediate follow-through. Frequently these will give you a clue to any illegal ball handling which occurs.

Announce the foul or violation clearly so that players, coaches, scorers, and timers can hear. Hold your signals long enough for all to see to prevent confusion and misunderstanding. Your signals should be so explicit that one could watch them and tell what was going on during the game.

The Spirit of the Rule

Remember, it is not the letter of the rule but the spirit of the rule that makes a good game. As an official one should not destroy this spirit or allow the players to violate it. An official should take the initiative when she discovers a violation of the spirit of the rule and makes a ruling immediately. For example, a team was reported to have used splints on their thumbs during a tournament. When the officials discovered this and a request was made to remove them, they protested saying, "There is nothing in the rules which says we cannot do this."

There is no way to prepare an official for every situation she may face. Therein lies the challenge. It is through practice, study, and experience that one can begin to learn hundreds of rules, make split-second decisions, and concentrate only on the play. Officiating can be a very satisfying experience for those who are willing to devote the time and energy to acquiring the necessary skills.

Comparisons of Volleyball Rules

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Three sets of volleyball rules are currently employed: those of the International Volleyball Federation, those of the United States Volleyball Association, and those of the Division for Girls and Women's Sports. Although the games are basically similar, minor differences complicate play between groups. Most girls and women's groups play under DGWS rules, while in the United States most men play under USVBA rules. All international competition, such as that in the Olympics, as well as all play in foreign countries, is under International Volleyball Federation rules. For your interest the three sets of current rules are contrasted below:

	DGWS	*USVBA*	*International*
Number of Players	6	6	6
Court	30′ x 60′	30′ x 60′	29′6″ x 59′ (9 x 18 meters)
Net	7′ 4¼″	8′—men 7′ 4¼″—women	7′11⅝″—men 7′4⅛″—women
Spiking Line	None	10′	10′
Substitution	One player may not enter more than two times in one game.	One player may not enter more than three times in one game.	Teams allowed only six substitutions in one game, and one player may not enter more than two times in one game.
	If a player re-enters, he must take his original place in the serving order.	If a player re-enters, he must take his original place in the serving order.	When re-entering must take original position. Only the original player may take the substitute's place.

	DGWS	*USVBA*	*International*
Playing Ball	Any part of the body above and including the waist.	Any part of body above and including the waist.	Any part of body above and including the waist.
Blocking	Permissible, only front line players may block.	Permissible, only front line players may block.	Permissible, only front line players may block.
Recovering Own Block	Legal only if 2 or 3 blockers used	Legal	Legal
Back Line Player Spiking	Not permissible.	Permissible if take-off was behind 10-foot line.	Permissible if take-off was behind 10-foot line.
Screening on the Serve	Not permitted.	Not permitted.	Not permitted.
Simultaneous Contacts by Teammates	Permitted, counts as one hit; both may participate in next play.	Permitted, counts as one hit; both may participate in next play.	Permitted, counts as two touches of the ball.
Length of a Game	Two out of three games, 15 points or eight minutes each; winner must be two points ahead.	Two out of three games, 15 points or eight minutes each; winner must be two points ahead.	Three out of five games, 15 points each; winner must be two points ahead.

Coed Play

Of the three groups which publish rules, only the USVBA and the DGWS provide for coed play.[1] The same rules apply as for regular play with the following exceptions:

[1] Rules appear in *Official Guide* published by the United States Volleyball Association (USVBA Printer, P.O. Box 109, Berne, Indiana 46711) and in *Volleyball Guide* published by AAHPER (1201 16th St., N.W., Washington, D.C. 20036).

1. Serving order and position on the floor should be an alternation of men and girls or vice versa.
2. When the ball is played by more than one player on a team, one of these must be a girl.
3. The height of the net should be as follows:

DGWS	*USVBA*
8 feet—adult and college	8 feet
7 feet 4¼ inches—high school	

Other rules of the game not mentioned in the preceding comparisons may be assumed to be identical or very similar.

Official Rules for Corecreation Volleyball

In playing corecreation volleyball, DGWS rules should be followed with the following exceptions:

Rule 2. Net height:
For high schools, the official net height is 7 feet 4¼ inches.
For junior high schools and younger players, the official net height is 7 feet.
For college and adult players, the official net height is 8 feet.

Rule 4. The team shall consist of three girls and three boys who shall be placed in alternate positions on the floor.

Rule 7. When a ball is played by more than one player on a team, one of these must be a girl.

Rule 8. Except for the serve, the ball may be contacted with any part of the body.
Only players in the front line at the time of the serve may block.

Method of Scoring Volleyball

Serving Order. The names of players shall be entered in their order of service for the first game. Players can be identified by number or position. Points won during a term of service are indicated by tallying (/ / / /). Record a zero (0) when a player finishes her term of service. The serving order may be changed at the beginning of the next game.

Running Score. Cross off the squares diagonally for each point scored.

Substitutes. In the column headed Times in Game, cross out tally when player is removed from the game. Enter the substitute's name in the space provided, giving her the serving order of the player she replaced. Record whether it is the first or second time she has entered the game. If a player re-enters, write 2. Cross out the 2 if she is removed again, indicating that she may not play in that game again. When it is necessary that a substitution be made under the special provision stated in Rule 4, Sec. 3f, draw a line through the injured player's name, indicating that she may not re-enter the match. Write the abbreviation (Inj.) in the Points column. If no space is available to re-enter the incoming substitute's name, write her name above the injured player's name.

Time-out. When a team takes time-out (other than for a substitution), cross off the (1) following Time-Out. If a second time-out is taken, cross off the (2).

Blanks. First Serve, Court, Game Won By, etc., should be filled out with the appropriate information.

Officials. At the end of each game, the referee checks the scorebook and announces the score. At the end of the match, the referee, the umpire, the official scorekeeper, and the official timekeeper sign the scorebook.

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Revised by CAROLYN LUKOWICZ
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Selected Visual Aids

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Films

Fundamentals of Volleyball (revised). 16 mm, 10 min., sd., b&w. Sale $60; rental $10 for three days. All American Productions and Publishers, P.O. Box 91, Greeley, Colorado 80632. Film includes front and side views of basic fundamentals, in regular speed and slow motion, demonstrated by men championship players. Fundamentals are further demonstrated by actual game competition.

Volleyball Drills and Techniques. 16 mm, 14 min., sd., b&w or color. Sale color $145, b&w $75; rental $10 for three days. All American Productions and Publishers, P.O. Box 91, Greeley, Colorado 80632. Volleyball skills and drills are presented together in the film with men demonstrating the fundamentals. Thirty drills are shown.

Volleyball for Women. 16 mm, 15 min., sd., b&w or color. Sale color $180, b&w $90; rental $10 for three days. All American Productions and Publishers, P.O. Box 91, Greeley, Colorado 80632. Elementary and advanced volleyball skills are well demonstrated, in slow motion and at regular speed, by outstanding women players. Also included in the film are positioning, team strategy, and practice drills. Film can be a good teaching aid for elementary and advanced class instruction and presently is considered among the better films available for girls and women's volleyball.

Volleyball Skills. 16 mm, 13 min., sd., b&w or color. Sale color $135, b&w $70; rental $10 for three days. All American Productions and Publishers, P.O. Box 91, Greeley, Colorado 80632. All-American men players demonstrate elementary and advanced skills in a game situation and then review body movements of each skill. Drills also shown in a team practice session.

Volleyball Skills and Practice. 16 mm, 12 min., sd., b&w or color. Sale color $75, b&w $35. Film Associates, 11559 Santa Monica Blvd., Los Angeles, California 90025. Basic skills of underhand volley, overhand volley, spike net volley, overhand serve, and underhand serve demonstrated by elementary school girls and boys in a playground situation. Uses normal speed action as well as slow motion. At the end of each skill session a practice period is shown.

Volleyball, USA. 16 mm, 17 min., sd., b&w. Sale $95; rental $6 daily. Association Instructional Materials, 600 Madison Avenue, New York, N.Y. 10022. Traces origin of the sport; slow motion and stop action. Includes highlights of the national match. Suitable for training and motivational use with junior high and high school levels as well as college level.

Filmstrips

Beginning Volleyball. Four slide-film units in color. Sale only. Si. $36.70; sd. (two 33⅓ recordings) $42.30. Accompanying instructor's guide. Athletic Institute, 805 Merchandise Mart, Chicago, Illinois 60654.

UNIT I: *The Game.* Introduces game with a brief history and development of sport, court and equipment specifications, and a review of simple rules, demonstrating some playing fundamentals.

UNIT II: *The Pass.* Demonstrates the chest pass, dig pass, underhand pass, and fist recovery and stresses the importance of directing ball well on the set pass.

UNIT III: *The Serve.* Presents underhand and overhand methods of serving ball with description of the mechanics.

UNIT IV: *The Attack.* Spike presented as the attack in game play. Mechanics of the spike and examples of its strategic use in game play are demonstrated by men players.

Loop Films

(1) The Serve
(2) The Underhand Pass
(3) The Set
(4) The Spike
(5) The Block and the Japanese Roll

$13 each. Set of 5, $58.50. Athletic Institute.

Technique Charts

Pictorial Volleyball. A series of twenty-six 8½ x 11 photographs showing volleyball skills and positioning with printed descriptions of mechanics. Sale $1 per set with discounts on bulk orders of ten or more. Creative Editorial Service, P.O. Box 2244, Hollywood, California 90028. The black and white photographs present clear sequential shots of a girl performing the underhand serve, overhand serve, chest pass, dig pass, set-up, spike, and dink. There are also five illustrations of girls' team play including the position of readiness; the first, second, and third contact with the ball; and a successful spike. Suitable for bulletin board display or as teaching aids for secondary level students.

Volleyball Technique Charts. (Revised 1967). Twelve 8½ x 11 black and white illustrations of basic skills and positioning with volleyball banner for bulletin board. Sale $1 per set. Division for Girls and Women's Sports, AAHPER, 1201 Sixteenth St., N.W., Washington, D.C. 20036. The packet includes materials designed for bulletin board displays which can be used as good motivational and teaching aids. Basic skills illustrated in the charts include the sidearm, overarm, and underarm serves, with emphasis on different hand positions; the overhead and underhand volleys; net recovery; set-up; spike; and block.

Sample Volleyball Scoresheet

TEAM Yellow					TEAM Blue				
SERVING ORDER	NAMES OF PLAYERS	NO.	TIMES IN GAME	POINTS	SERVING ORDER	NAMES OF PLAYERS	NO.	TIMES IN GAME	POINTS
1	Clara Roth	8	X	11010	1	Lena Brown	5	X2	110
	Donna Doe	11	/	0		Iona Apple	9	X	010
2	Sarah King	3	/	0100	2	Bertha Barrett	6	/	01010
3	Pat Walsh	7	/	11101	3	Lynn Griggs	2	/	11001
4	Linnie Weeks	4	X	1010	4	Connie Jenkins	1	X2	0
	Daisy Eady	15	/	0		Iona Apple See Switch	9	X2	10101
5	Irene Keller	6	/	11001	5	Mary Kelsey	4	/	1010
6	Jane King	1	/	00	6	Pat Luv	3	X	0
						Peg Cole	7	/	0

TIME OUT ✕ (1) (2) TIME OUT (1) (2)

FIRST SERVE Yellow GAME WON BY Yellow

COURT South SCORE 15-12

RUNNING SCORE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	✕	✕	✕	✕	✕	✕	✕	✕	✕	✕	✕	✕	✕	✕	✕	✕	17	18	19	20

RUNNING SCORE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	✕	✕	✕	✕	✕	✕	✕	✕	✕	✕	✕	12	13	14	15	16	17	18	19	20

REFEREE Rita Brown UMPIRE Jane Smith TIMER Pat Garr